Cogito ergo ludo:

Why Ultimatum and Dictator Games should be employed to unveil social cognition and no longer be confined to economic rationality

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Erklärung

Chapter 3 beruht auf folgendem Manuskript:

Ruessmann, J. K., & Topolinski, S. (2020). Economic Decisions for Others Are More Favorable for Close Than Distant Clients. *Personality and Social Psychology Bulletin*, *46*, 393-407.

Ich habe die Idee entwickelt, die Datenerhebung überwacht, die Analyse der Daten durchgeführt und das Manuskript geschrieben. Sascha Topolinski hat zu jedem Schritt wertvolle Vorschläge beigetragen.

Chapter 4 beruht auf folgendem Manuskript:

Ruessmann, J. K., & Unkelbach, C. (submitted). Rational dictators in the Dictator Game are seen as agentic and conservative, but not intelligent.

Christian Unkelbach und ich haben die Idee entwickelt. Ich habe die Datenerhebung überwacht, die Analyse der Daten durchgeführt und das Manuskript geschrieben. Christian Unkelbach hat zu jedem Schritt wertvolle Vorschläge beigetragen.

Die vorliegende Dissertation befolgt die Richtlinien zur Manuskriptgestaltung des 6. Publikationsmanuals der American Psychological Association (APA 6).

Janna Katrin Rüßmann, Köln, September 2020

Abstract

Behavioral economics (BE) is a relatively young field of research, though its roots are old and date back to the beginning of the 20th century. As a discipline, BE is methodologically eclectic and may not be defined based on a specific research method. Nevertheless, the experimental implementation of economic games is clearly one of the most prevalent methodological tools of BE and has substantially contributed to BE entering the verge of becoming a mainstream research activity. In fact, the past three decades have witnessed an explosion of research implementing economic games – especially the Ultimatum Game (UG) but also its descendant, the Dictator Game (DG). In UGs, proposers decide how much of a given endowment to offer to responders. If responders accept the offer, both receive their corresponding shares. If responders reject the offer, both receive nothing. In DGs, dictators decide how much of a given endowment to send to receivers with no further interactions. In my dissertation, I argue that past research on UGs and DGs tended to be narrow in scope and overly emphasized the theoretical relevance of investigating and altering behavioral anomalies emerging from UGs and DGs. More specifically, past research in this vein, typically started with an assumed or demonstrated violation of a dominating economic assumption (i.e., an anomaly) and then tried to provide a psychological explanation for the violation. By now, however, anomalies in UGs and DGs are considered robust phenomena and as such common knowledge to behavioral economists. Thus, in order to advance the field rather than perpetuate its conceptual narrowness, I propose a shift in empirical focus: addressing anomalies in UGs and DGs should no longer be the focal goal of BE. Instead, the focal goal should be to employ economic games as rigorous vehicles to foster understanding of the psychological mechanisms underlying a wide range of social interactions, which are modelled by the games (cf. Chapter 2). Specifically, I argue that it is not the paradigm itself that should be investigated, but rather the social behavior that is modelled by the paradigm. In Chapter 3 and 4, I provide two different examples for novel research approaches both shifting the focal question from why players in economic games make certain decision to how their decision can inform broader social concepts in interactive and decision-making behavior. Specifically, Chapter 3 employs 11 experiments (total $N = 1653$) shifting the focal question of UG research from why responders decide to reject or accept a given offer to how their behavior may unveil the moderating effect of social distance in decision-making for others within the UG. Thereby, I

employ the UG as a mere vehicle to realize different levels of social distance and outcome value. In Chapter 4 (total $N = 905$), I shift the focal question of DG research from why dictators decide to send a given amount of money to how these decisions may inform and shape social perception. Thereby, I employ the DG as a tool to realize different, observable levels of behavioral fairness. I do not primarily aim to foster further understanding of UGs and DGs, but rather of generally valid psychological concepts such as social distance (Chapter 3) and social perception (Chapter 4) and their influences on social interactions and decision-making. The key findings of Chapter 3 are: First, participants deciding about unfair and hyper-fair offers in UGs for themselves or for a client varying in social distance (e.g., close friend vs. stranger), accepted more hyper-fair offers for themselves and close clients than for distant clients, while client identity played no role in unfair offers. Second, the driving mechanism of this client privileging effect is joy participants experienced particularly for close clients, while envy did not explain this effect. Thus, the level of displayed fairness in the UG was critically influenced by client identity suggesting a crucial role of social distance and social emotions in economic decision-making. Chapter 4 explored the relations observers infer between dictators' money amount sent and personality traits. The key findings of Chapter 4 are: participants rated "unfair" but rational dictators who sent little or no money as more agentic and conservative, but less communal, liberal, and intelligent than "fairer" dictators who sent up to half of the money. That is, level of displayed fairness influenced social perception. Vice versa, participants expected more conservative, less communal, or less intelligent dictators to send less money compared to more liberal, more communal, or more intelligent dictators. That is, level of expected fairness was influenced by social perception. When participants factually played the DG employing real money, only self-reported communion correlated with the money amount sent. That is, the inferences participants drew from DG behavior about personality traits and intelligence (and vice versa) did not reflect reality but rather participants' social construction of reality. In sum, the findings of Chapter 4 suggest a crucial role of evaluation apprehension in economic decisions. In Chapter 5 and 6, I discuss how the empirical insights provided in my dissertation may contribute to a profounder understanding of the role of fairness and rationality in social interactions and decision-making, allow for novel predictions building upon them, and offer the potential of further theoretical (e.g., regarding inequity aversion theory) and conceptual (e.g., regarding the construct of rationality) integration.

Keywords: self-other decision-making, social distance, joy for others, social comparison, social perception, ABC model of stereotypes, dictator game, economic games, intelligence

Zusammenfassung

Die Verhaltensökonomie ist zwar ein vergleichsweise junges Forschungsfeld, ihre akademischen Wurzeln jedoch sind alt und können bis zurück zu den Anfängen des 20. Jahrhunderts datiert werden. Die Methodik der Verhaltensökonomie ist von Eklektizismus geprägt, aber dennoch können sogenannte ökonomische Spiele als eines ihrer bedeutendsten methodischen Werkzeuge erachtet werden. Die Forschung zu ökonomischen Spielen ist in den letzten drei Jahrzehnten substanziell gewachsen, vor allem solche, die das Ultimatum-Spiel oder dessen Derivat – das Diktator-Spiel – verwendet. Ultimatum-Spiele werden von zwei Spielern gespielt (Anbieter und Empfänger), wobei der Anbieter dem Empfänger ein Angebot zur Aufteilung eines Geldbetrages, der dem Empfänger zuvor zugeteilt wurde, macht. Der Empfänger kann dieses Angebot dann entweder annehmen oder ablehnen. Nimmt er es an, so erhalten beide Spieler ihre entsprechenden Anteile, lehnt er es allerdings ab, so bekommt keiner der Spieler einen Geldbetrag ausgezahlt. Diktator-Spiele laufen ähnlich ab, allerdings wird dem Empfänger hierbei sein Vetorecht entzogen, er bekommt ausgezahlt, was auch immer der Diktator ihm zuteilt, wobei dieser über die Zuteilung frei entscheiden kann. In meiner Dissertation lege ich dar, dass die vergangene Forschung zu Ultimatum- und Diktator-Spielen konzeptuell zu eng gefasst war und die Relevanz der Untersuchung und Veränderung von Verhaltensanomalien in Ultimatum- und Diktator-Spielen als solchen zu stark betont hat. Damit meine ich insbesondere, dass vergangene Forschung typischerweise damit begann, eine Verhaltensanomalie im Ultimatum- oder Diktator-Spiel aufzuzeigen und folglich versuchte, diese Anomalie psychologisch zu erklären. Zum jetzigen Zeitpunkt können Verhaltensanomalien in Ultimatum- und Diktator-Spielen allerdings als robuste Phänomene erachtet werden, die keiner weiteren empirischen Untermauerung bedürfen. Um die Verhaltensökonomie als empirisches Forschungsfeld konzeptuell voranzubringen, schlage ich in Kapitel 2 daher vor, den Schwerpunkt von der Untersuchung von Verhaltensanomalien zu der Implementierung ökonomischer Spiele als methodische Vehikel, die Einsicht in allgemeinere, psychologische Prinzipien, die sozialen Interaktionen und Entscheidungsverhalten zu Grunde liegen, ermöglichen, zu verlagern. Es sollte nicht das Paradigma als solches sein, das untersucht wird, vielmehr sollten es die sozialen Prozesse, die das Paradigma reflektiert, sein, die untersucht werden. In Kapitel 3 und Kapitel 4 stelle ich zwei unterschiedliche Beispiele neuartiger Forschungsfragen dar, die ihr empirisches

Primäraugenmerk nicht darauf legen, Verhalten in ökonomischen Spielen zu begründen, sondern darauf, was wir von diesem Verhalten über soziale Konzepte, die Interaktionen und Entscheidungsverhalten betreffen, im Allgemeinen lernen können. Kapitel 3 berichtet elf Experimente (Gesamtstichprobe = 1653), die einen bislang nicht untersuchten sozialpsychologischen Moderator des Verhaltens im Ultimatum-Spiel untersuchen: die Distanz zwischen Entscheidungsträgern, die über Angebote entscheiden, und Entscheidungsempfängern, für die stellvertretend über Angebote entschieden wird. Folglich wird in Kapitel 3 das Ultimatum-Spiel als bloßes Vehikel, das es ermöglicht, unterschiedliche Stufen der sozialen Distanz sowie des Ergebniswertes zu operationalisieren, implementiert. In Kapitel 4 (Gesamtstichprobe = 905) wird nicht untersucht, warum sich Diktatoren in Diktator-Spielen für bestimmte Allokationen entscheiden, sondern, was wir aus ihren Allokationsentscheidungen über soziale Wahrnehmung lernen können. Folglich wird in Kapitel 4 auch das Diktator-Spiel lediglich als methodisches Vehikel benutzt, um verschiedene Stufen wahrnehmbaren Fairnessverhaltens zu operationalisieren. Es ist nicht das primäre Ziel meiner Dissertation, zum weiteren Verständnis der Spieldynamiken in Ultimatum- und Diktator-Spielen als solchen beizutragen, sondern das Verständnis des Einflusses psychologischer Konzepte wie soziale Distanz (Kapitel 3) und soziale Wahrnehmung auf soziale Interaktionen und Entscheidungsverhalten zu befördern. Die Hauptergebnisse von Kapitel 3 lassen sich wie folgt zusammenfassen: 1. Versuchspersonen, die entweder für sich selbst oder für andere, die bezüglich der sozialen Distanz zu ihnen variieren (z.B. enge Freunde vs. Fremde), über unfaire und hyper-faire Angebote in Ultimatum-Spielen entscheiden, akzeptieren systematisch mehr hyper-faire Angebote, die entweder an sie selbst oder ihnen sozial nahestehende Personen adressiert sind als solche, die an ihnen sozial fernstehende Personen adressiert sind. Die soziale Distanz zwischen Entscheidungsträger und -empfänger hat keinen Einfluss auf die Akzeptationsrate unfairer Angebote. 2. Der dieser „Klienten-Privilegierung“ zugrundeliegende Mechanismus ist Freude, die Versuchspersonen stellvertretend für ihre Klienten empfinden. Diese Freude ist im Falle sozial nahestehender Klienten stärker ausgeprägt als im Falle sozial fernstehender Klienten. Neid ist jedoch kein zugrunde liegender Mechanismus der Klienten-Privilegierung. Daraus folgt, dass durch Entscheidungen offenbartes Fairnessverhalten in Ultimatum-Spielen stark vom Grad der sozialen Distanz zwischen Entscheidungsträger und -empfänger beeinflusst wird und soziale Distanz sowie soziale Emotionen folglich eine wichtige

Rolle bezüglich (ökonomischen) Entscheidungsverhaltens spielen. In Kapitel 4 habe ich den Zusammenhang zwischen Diktator-Verhalten und Persönlichkeitseigenschaften, den Beobachter von Diktator-Spielen ableiten, untersucht. Die Hauptergebnisse von Kapitel 4 lassen sich folgendermaßen zusammenfassen: Versuchspersonen schätzen „unfaire“ Diktatoren, die entweder gar kein Geld oder nur geringe Beträge allokieren, als agentischer und konservativer, dafür aber auch als weniger kommunal, liberal und intelligent ein als Diktatoren, die höhere (fairere) Geldbeträge allokieren. Folglich wurde die soziale Wahrnehmung durch das offenbarte Fairnessverhalten entschieden beeinflusst. Umgekehrt konnte ich auch zeigen, dass Versuchspersonen erwarten, dass konservativere, weniger kommunale oder weniger intelligente Diktatoren weniger Geld allozieren als liberalere, kommunalere oder intelligentere Diktatoren. Demnach wurde der prognostizierte Grad an Fairness durch die soziale Wahrnehmung beeinflusst. Darüber hinaus habe ich auch untersucht, ob sich die gefundenen Zusammenhänge zwischen Fairnessgrad und Persönlichkeit auch im eigenen Verhalten von Versuchspersonen offenbaren. Hierfür habe ich Versuchspersonen echtes Geld zugeteilt und sie das Diktator-Spiel selbst spielen lassen, sowie sie Persönlichkeitsfragebögen ausfüllen lassen und ihre Intelligenz mittels kurzer Screeningtests gemessen. In diesen Studien habe ich lediglich eine Korrelation zwischen selbsteingeschätzter Kommunalität und Höhe des Allokationsbetrags gefunden. Insgesamt zeigen die Ergebnisse von Kapitel 4, dass Bewertungsantizipation eine wichtige Rolle in (ökonomischem) Entscheidungsverhalten spielt. In Kapitel 5 und 6 diskutiere ich abschließend, wie die empirischen Erkenntnisse meiner Dissertation zum tiefergehenden Verständnis des Einflusses von Fairness und Rationalität auf soziale Interaktionen und Entscheidungssituationen beitragen können, wie man aus ihnen darauf aufbauende, weitere Forschungsfragestellungen entwickeln kann und wie diese in zukünftiger Forschung weitere theoretische (z.B. in Bezug auf Ungerechtigkeitsaversion) sowie konzeptuelle Integration (z.B. in Bezug auf den Rationalitätsbegriff) finden können.

Structure

Chapter 1 – Introduction

More than half a century ago, University of Michigan psychology professor George Katona (1951) advocated a rapprochement between the fields of economics and psychology and pointed out:

> The basic need of psychology in economic research consists in the need to discover and analyse the forces behind economic processes, the forces responsible for economic actions, decisions and choices. Economics without psychology has not succeeded in explaining important economic processes and 'psychology without economics' has no chance of explaining some of the most common aspects of human behavior. (pp. 9-10)

In recent years, this rapprochement has manifested itself in the establishment of a whole new discipline: behavioral economics (BE)[1]. Initially emerging as a bona fide subdiscipline of economics (cf. Angner & Loewenstein, 2012), BE is said to begin[2] with the work of two towering researchers from psychology departments – Herbert A. Simon from Carnegie-Mellon University and the quoted author, George Katona (cf. Sent, 2005; Hosseini, 2011; Heukelom, 2014).

BE, as it is nowadays mostly employed, is defined as the attempt to "increase(s) the explanatory power of economics by providing it with more realistic psychological foundations" (Camerer & Loewenstein, 2003, p. 3). Consequently, BE seeks to explain a wide range of economic behavior and decision-making by considering and incorporating their psychological underpinnings and the social conditions under which they occur (for an overview of the accomplishments of BE, see Etzioni, 2011). In my dissertation, I aim to support the notion that

[1] For an excellent introduction to the field, see Advances in Behavioral Economics (Camerer, Loewenstein, & Rabin, 2004).
[2] Note, however, that BE represents a reunification of economics and psychology, rather than a novel synthesis, because early theorizing in economics was filled with psychological insight (Camerer, 1999).

psychology and (behavioral) economics can stimulate each other and that Katona's perspective is still relevant. Moreover, I argue that there is still more to learn for BE from psychology, particularly from social cognition research (e.g., Bless, Fiedler, & Strack, 2004). I illustrate several bridges between social cognition and BE that have already been built and provide two novel, empirical examples for further bridging. Thereby, I specifically focus on BE's associated methodology of economic games and shortly introduce the theoretical framework of economic games, that is, behavioral game theory (Camerer, 2003). In Chapter 2, I argue that economic games provide a straightforward, well-established, and efficient approach for investigating decision-making, and are rigorous models for a wide range of social interactions.

In Chapter 3 and 4, I demonstrate how so far neglected research questions can arise from experimentally integrating economic games and social cognition research, generating novel, interesting patterns of results. My focal goal thereby is to employ economic games as methodological vehicles in order to foster understanding of the psychological mechanisms underlying social interactions and decision-making behavior in general. Beyond simply providing productive areas to mine for more research findings, I argue that a broader synthesis of economic games with social cognition research has the potential to decisively advance the field of BE and promote the integration of both economic and psychological theorizing. Before the empirical part, the following section briefly places the emergence of BE into the broader scientific-historical context of its development in the last century[3].

The historical development of behavioral economics

The designation BE was in use as early as in the fifties (Johnson, 1958). However, in order to understand the important contribution of this still comparably young discipline and to

[3] It is not my intention, however, to provide an overview of last century's empirical results in BE. For such a review, I refer to Rabin (1998).

fully grasp why its emergence was required in the first place, it is necessary to go even further back in history than the fifties. In fact, BE draws upon developments which can be dated back to the beginning of the twentieth century. Angner and Loewenstein (2012), for instance, go even further by claiming that "attempts to tie economic theory to a psychologically plausible account of human judgment and decision-making are as old as economics itself" (p. 14). Although bold at first glance, their claim instantly appears less provocative when considering that the first great classical economist, Adam Smith, was indeed highly interested in the psychological antecedents of individual motivation and behavior as corroborated by the quote "How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him" (Smith, [1759] 1976, p. 9).

Nevertheless, explicitly incorporating psychological knowledge into economic theorizing should not be attributed to Adam Smith. Although it is historically difficult to determine who was the first to specifically foster closer cooperation between economics and psychology, in the German-speaking world, Hugo Münsterberg – a doctoral student of Wilhelm Wundt – is undoubtedly among those (psychologists) to be credited for that (cf. Münsterberg, 1912). At about the same time, American economist Wesley Clair Mitchell (1914) prognosticated in his article on economics and human behavior that "economics will assume a new character. It will cease to be (…) a mechanical study of static equilibria under non-existent conditions, and become a science of human behavior" (p. 47).

Although this was (in hindsight) the right call and not just a visionary statement, Mitchell's prognosis did not come to fruition within the subsequent decades. Instead, attempts to combine economics with psychological underpinnings of behavior soon faded into the background as postwar (i.e., neoclassical) economists were eager to gain distance from

psychology in any shape or form (Mandler, 1999). This was mainly due to the fact that postwar economists were dissatisfied with the degree of scientific progress that had been achieved by integrating the type of psychological theorizing prevalent at that time (Angner, 2019). Specifically, economists became convinced that "references to unobservable entities 'in the head' of the economic agent were scientifically illegitimate" (Angner, 2019, p. 201), and even dispensable. In other words, postwar economists wanted to become "true scientists" conducting their research solely on the basis of observational data and abstaining from making any references to cognitive and affective states. As British economist Lionel Robbins ([1932] 1984) wrote, economic theory should have "no essential connection with psychological hedonism, or for that matter with any other brand of Fach-Psychologie" (p. 85). According to the view prevailing for many years after, economists should exclusively gather their data from directly observable choice behavior reflecting people's true preferences. That is, questions of preference formation or motivation were discounted and considered as outside the scope of economics, while the concept of revealed preferences (cf. Samuelson, 1955)[4] came to be the leading notion in economics. In short, among economists, psychology fell into disgrace.

Psychologists at that time, however, slowly began to move in the opposite direction, that is, they wanted to get rid of classical behaviorism (as introduced by John B. Watson, 1913)[5], and they gradually succeeded in achieving that aim. More specifically, following the heydays of behaviorism, cognitive psychology emerged in the 1950s as a direct opposition to the behavioral doctrines (for a review of the "cognitive revolution", see Gardner, 1987). Cognitive psychology – inextricably linked with the name of the above-mentioned Herbert Simon (cf. Sent, 2005) – put

[4] Revealed preference theory assumes that the best way to measure rational people's preferences is to observe their choices (i.e., purchasing behavior).
[5] Watsonian behaviorism refers to the conviction that psychology as a science of behavior should focus on behavior only and should avoid references to unobservable entities such as beliefs or motivations.

an end to the dominance of behaviorism in psychology and resurrected a focal interest in cognitive, affective states and internal mental processes. Although counterintuitive at first sight, cognitive psychology opened the door for a renewed and more successful rapprochement between economists and psychologist and thus, ultimately, realized Katona's (1951) postulation quoted in the beginning of this chapter.

The "old" behavioral economics

What began to emerge in the 1950s, is now referred to as the "old behavioral economics" (Sent, 2004, p. 740). Earl (1988) discerns four different groups of contributors to old BE – among them Katona and Simon – with different research foci but a shared goal: A departure from the neoclassical economic model of behavior with its overemphasis of expected utility maximization[6] and consequently the development of an alternative model incorporating insights from psychology. As Simon (1987) encapsulated it, "Behavioural economics is concerned with the empirical validity of these neoclassical assumptions about human behaviour and, where they prove invalid, with discovering the empirical laws that describe behaviour as correctly and accurately as possible" (p. 221). The main scientific goal of old BE can be broken down to aiming no longer only for describing behavior (as economists) but also for *explaining* behavior – by means of "good psychology" (see also, Thaler, 2016).

The "new" behavioral economics

The following era of modern or "new behavioral economics" (Sent, 2004, p. 748) started in the 1970s and continues until now. In retrospect, it seems evident that the most fruitful

[6] The term utility refers to subjective value. The principle of maximizing expected utility postulates that economic agents opt for the action/decision with the highest expected utility. Then, agents are considered "rational". Expected utility (i.e., value) can be calculated: one takes the objective value of each possible choice outcome and then multiplies it by its probability and then sums the respective products over all possible outcomes. For further reading, see, Stigler (1950a, 1950b).

development for modern BE was the emergence of "behavioral decision research" (for an overview, see Payne, Bettman, & Luce, 1998) as a new area of psychology in the 1970s. Behavioral decision research uses the neoclassical principle of economic rationality (i.e., maximization of utility) and logical rules of probability judgment as the backdrop for describing actual, observable decision-making and behavior. Thereby, behavioral decision research uses conformity or deviation from utility maximization and the rules of probability judgment as means to the end of theorizing about cognitive mechanisms. In short, behavioral decision research aims to identify the cognitive aspects of judgment and decision behavior along with a better understanding of their benefits and limitations. It was through the work of two eminent researchers from psychology departments that behavioral decision research was brought to the attention of economists: Daniel Kahneman and Amos Tversky.

According to Rabin (1996), Kahneman's and Tversky's scientific achievements were mainly due to the fact that they were "able and willing to address economists in standard economic language and venues" (p. 111). To cut the matter short, Kahneman and Tversky used insides from psychology to empirically demonstrate how decision makers systematically deviate from the predictions of neoclassical economic theory and came up with an alternative model: prospect theory (Kahneman & Tversky, 1979). Furthermore, they investigated how judgment and decision makers depart from basic principles of probability by taking mental shortcuts (i.e., heuristics) – with the aim to improve judgment and decision-making, especially under conditions of uncertainty (Tversky & Kahneman, 1974).

As Laibson and Zeckhauser (1998) put it, "[these] publications altered the intellectual history of economics; they brought the behavioral economics research program into the mainstream" (p. 19), and can be considered the birth of modern, new BE. Moreover, these

publications (Tversky & Kahneman, 1974; Kahneman & Tversky, 1979; Tversky & Kahneman, 1981) inspired a tremendous number of studies in the field[7], and ultimately have won Kahneman – together with Vernon L. Smith[8] – the Nobel Prize in Economics in 2002[9]. Importantly, Kahneman's and Tversky's insights were picked up by Richard Thaler (e.g., Thaler, 1980), who received his Ph.D. in economics and significantly added to forcing the awareness and acceptance of BE among mainstream economists and other scientists with an interest in economics[10]. Most recently, in 2019, Thaler's contributions to BE culminated – like Kahneman's – in being awarded the Nobel Prize in Economics[11]. The focal point of the BE as fostered by Kahneman and Thaler was the substitution of (neoclassical) economists' epistemology of generalized characterizations with psychologists' epistemology of directly falsifiable empirical observations (cf. Heukelom, 2014, p. 6).

The fact that through the work of these Nobel prize winners, BE back then entered the verge of going mainstream is also reflected on an institutional level: First, in 1972, the *Journal of Behavioral Economics* was founded – with the clear aim to "promote interdisciplinary work" between economists and psychologists among its scientific objectives (Hattwick, 1972, p. 3). Second, in 1981, the foundation of the *Journal of Economic Psychology* followed, through which the field has gained broad attention; and three years later the first Annual Conference on BE was held (for a more detailed overview of the institutionalization of new BE, see Sent, 2004).

[7] For bibliometric data supporting the hypothesis of a steady increase of research activity in BE, see Geiger (2017).
[8] Note that an economist and a psychologist jointly received the price – which clearly reflects the process of reunification between the two disciplines.
[9] Tversky died in 1996. For Kahneman's Nobel lecture, see Kahneman (2003).
[10] For a review of Thaler's contributions, see Loewenstein (1996).
[11] For reflections on the 2017 Nobel Prize awarded to Thaler, see Grüne-Yanoff (2017).

Chapter 2 – Game theory and behavioral game theory

"One cannot, without empirical evidence, deduce what understandings can be perceived in a nonzero-sum game of maneuver any more than one can prove, by purely formal deduction, that a particular joke is bound to be funny." (Thomas Schelling, 1960, pp. 163-164)

BE is a methodologically eclectic discipline and not defined on the basis of a specific research method (cf. Angner & Loewenstein, 2006). In fact, one of the reasons why BE has proven to be so influential is that it has integrated methods from multiple related fields (e.g., sociology and anthropology) and still emphasizes the importance of gathering data from novel sources. However, the experimental study of economic games is clearly one of the most prevalent methodological tools of BE. Such games are spin-offs of one of the most vibrant and important mathematical fields created in the 20th century: game theory (GT).

The obvious landmark for the emergence of GT was the appearance of von Neumann and Morgenstern's (1944) *Theory of games and economic behavior* (following earlier work by von Neumann, Borel, & Zermelo in the 1920s; see also, Savage, 1954). In its classical form, GT is a mathematical language developed to model strategic interactions and their likely outcomes on condition that maximizing expected utility of these outcomes is strived after (cf. von Neumann & Morgenstern, 1944)[12]. Agents in GT are called players and essentially anonymous. Players' decisions are summarized by a complete contingent action plan (i.e., a strategy). A set of strategies constitutes a game, commonly known to all players. More specifically, a strategy specifies players' decision as a function of the information available to them at each point at

[12] In this section I do not intend to provide an overview of the mathematical aspects of GT. For furthering reading in this vein, see e.g., Luce and Raiffa (1957).

which they might need to make a decision. Taken together, players' strategies determine the game's outcome and should be thought of as simultaneously chosen at the outset of the game (cf. Rasmusen 1990; Crawford, 1997). GT further assumes that all players are rational (i.e., utility maximizing), have the same ideal capacities of reasoning, and share a common perception of the game[13]. Thus, on the highest abstraction level, a game becomes a well-defined common object of reasoning for which well-defined solution concepts can be derived (cf. Harsanyi & Selten, 1988).

Put simply, players plan ahead and form beliefs about the strategies the other players will most likely choose. If players' beliefs are correct, a Nash equilibrium[14] can be reached (Nash, 1950). Specifically, a Nash equilibrium is reached via mutual knowledge of beliefs and rational expectation, and, by implication, via mutual rationality. Consequently, at Nash equilibrium, none of the players can further increase their utilities (i.e., payoffs) by changing their strategies if the other players keep their strategies unchanged. That is, there is virtually no incentive for a unilateral change of strategy which is why the Nash equilibrium is self-enforcing.

Moreover, it is important to note that classical GT does not intend to describe (actual) choices. GT's main models and solution concepts are *normative* by definition (cf. von Neumann & Morgenstern, 1944; Savage, 1954). That is, classical GT primarily aims to understand how ideal-typical players would decide if complete perfect information, rationality, and common knowledge of this rationality are givens (for further reading, see Gintis, 1999). Consequently, classical GT purposely neglects players' real experiences such as their emotions, expectations, motives, and perceptions.

[13] Mutual knowledge means that all players know something. Common knowledge means that all players know that all players know something, and so on ad infinitum.
[14] The Nash equilibrium is the most widely used equilibrium concept in economics, but there are also others (for an overview of further equilibria concepts, see Osborne & Rubinstein, 1994).

In the second half of the 20th century, the usage of GT grew extensively, corroborating its theoretical fecundity and making it a standard language to parse the social word (Camerer, 2003). More specifically, GT became a key concept in describing a whole range of applied economic situations[15], including bargaining behavior (Chatterjee & Ulvila, 1982), competitive situations such as oligopoly creation (Karnani, 1984), collusion (Geroski, Phillips, & Ulph, 1985), buyer-seller negotiations (Neslin & Greenhalgh, 1983), advertising (Dirven & Vrieze, 1986), and market strategy (Karnani, 1985). Beyond the field of economics, GT established also footholds in a broad range of other fields (e.g., political science, evolutionary biology[16], philosophy, and, importantly, psychology), and can be used at many levels of analysis: players may be genes, people, or nation-states, strategies may be instincts, a financial plan, or a plan of battle plan, and outcomes may be reproduction, prestige, or control (cf. Camerer & Fehr, 2004). During the cold war era, for instance, GT found application in international politics and proved to be useful for discussing the resolution of the nuclear arms race[17].

However, further reviewing the diffusion of game-theoretic ideas in intellectual enterprises goes beyond the scope of this dissertation which intends to focus on the application of GT to the design of laboratory experiments – an area that became to known as behavioral game theory (BGT). Colin F. Camerer (1997)[18], who originally coined the terms, defined the aim of BGT as describing actual behavior and charting "a middle course between over-rational equilibrium analyses and under-rational adaptive analyses" (p. 167), with the latter being

[15] Ultimately, however, it is of course a chicken-and-egg problem, whether GT inspired modelling these situations or modelling these situations inspired GT (cf. Cournot, [1838] 1960).
[16] Maynard-Smith (1982) was the first to discover the power of GT thinking for all aspects of population biology.
[17] For an overview on the ways in which game-theoretic tools were implemented for various purposes, see Erickson (2015).
[18] Note, however, that the intellectual roots of BGT are much older and can be dated back to the 1950s, in which, for instance, Luce and Raiffa (1957) already published the "critical survey", which was even a point of culmination of the incorporation of GT into psychology.

exclusively driven by pattern recognition from empirical data (see also, Colman, 2003). In essence, BGT considers descriptive failure as prescriptive opportunity, and shifts the focus from theorizing about how ideally rational agents should behave to empirically investigating how actual people do behave. By following this aim, BGT revealed that people's behavior in strategic interactions substantially deviates from classical assumptions of utility maximization. In a next step, BGT tried to explain these deviations with psychological concepts such as "emotion, mistakes, limited foresight, doubts about how smart others are, and learning", and provided psychologically sounder alternatives for empirically inaccurate modelling principles (Camerer, 2003, p. 3). Although BGT is set up to inspire extensions and refinements of classical GT, it still aims to expand GT's methods as parsimoniously as possible (cf. Camerer, 2003; 2004): in Einstein's words "as simple as possible but no simpler".

Conducting laboratory experiments as economic games is the key heritage from GT to BGT. In such experimental economic games, both certain aspects of players' behavior (for which testable predictions can be derived from GT) and the boundaries of the environments are mapped simultaneously. Thus, theory and experimental games are of complementary value for BGT and games finally became an influential tool for positive analysis[19]. In order to employ economic games as laboratory tasks, the following criteria must be meet: first, each player makes at least one decision affecting her own and other players' payoffs. Second, the decisions' outcomes (i.e., payoffs) can be represented in a numerical form. Third, the experimenter specifies the numbers constituting this numerical form at the outset of the experiment (cf. Pruitt & Kimmel, 1977; Friedman & Sunder, 1993). As experimental paradigms, economic games are well controllable,

[19] In economics, a positive theory seeks to describe actual phenomena and makes factual statements about the world. A normative theory, on the other hand, seeks to make prescriptive, value-based statements, and recommendations about what behavior should be taken.

comparable, manipulable, and replicable, in other words, an ideal bridge between theory and empirical data (cf. Camerer & Fehr, 2004). There is much variability between different economic games such as the number of players involved, the number of rounds, and whether decisions are made sequentially or simultaneously (for a review on this matter, see Pruitt & Kimmel, 1977)[20]. Most importantly, different economic games have been developed to unveil specific aspects of strategic interactive behavior along with the psychological processes underlying these aspects (Komorita & Parks, 1995).

Bargaining games and social dilemmas are the two towering types of economic games and have been implemented in literally thousands of experiments (cf. Güth, 1995; Dawes, 1980; Messick & Brewer, 1983). In social dilemmas[21], players are instructed to make a claim from a common resource and face a trade-off between self-interest and collective interest, with the latter being achieved via mutual cooperation. Cooperation is risky, but in the case of all players cooperating, all players are ultimately better off (cf. Camerer & Fehr, 2002). I do not elaborate any further on social dilemmas, because they are beyond the scope of my dissertation and do not find experimental application here. Instead, I focus on bargaining games which are simpler in design and structure than social dilemmas and thus may provide purer measures of the psychological processes underlying them. In the following, I describe the rules and empirical regularities of two specific games in more detail because they provide the methodological basis of this dissertation. These two games are the Ultimatum Game and its descendant, the Dictator Game.

[20] For a review of the different levels on which economic games can be described (e.g., cooperative vs. non-cooperative), see also Schotter and Schwödiauer (1980).
[21] For a meta-analysis of social dilemma experiments from 1958 to 1992, see Sally (1995). For a more recent review, see, e.g., Van Lange, Joireman, Parks, and Van Dijk (2013).

The Ultimatum Game

The Ultimatum Game (UG) was originally introduced by three German economists who wanted to reduce bargaining to the narrowest scope by creating the simplest bargaining game possible (Güth, Schmittberger, & Schwarze, 1982). In fact, the rules of the UG are surprisingly straightforward: the game involves two players, usually called the proposer and the responder. At the outset, the proposer is endowed with a fixed money amount and moves first by proposing a distribution of this amount between herself and the responder. The responder is then presented with this proposal and asked to decide whether to accept or reject it. If the responder accepts the proposal, both the responder and the proposer receive their corresponding shares; but if the responder rejects the proposal, neither of the two players receives any gain and the money is returned to the experimenter[22]. Usually the ultimatum game is played single-shot, that is, only one proposal is made and the players do not know or even see each other, instead they stay anonymous.

Orthodox GT would postulate that both the proposer and the responder first and foremost seek to maximize personal payoffs. Thus, the proposer, who possesses all the bargaining power, should exploit it by proposing the smallest possible positive amount to the responder, who should accept this proposal because it is greater than the alternative of zero. However, this assumption turned out be bogus and a vast number of experimental studies found systematic deviations from orthodox GT's postulations (e.g., Güth, 1995; Thaler, 1988). By now, it is a well-established finding that a consistent portion of responders prefers to reject low proposals (i.e., 25% or lower) although this leads to both players ending up with no gain at all (for a recent

[22] The fact that proposers' decisions affect not only their own outcomes, but also the outcomes of responders, is a defining feature that sets the ultimatum game apart from other incentivized decision-making paradigms.

review, see Güth & Kocher, 2014)[23]. It is further well-established that proposers usually offer responders more than a trivial amount, quite often an equal division (Güth & Tietz, 1990; Camerer & Thaler, 1995)[24]. Ergo, experiments on ultimatum bargaining generated robust data starkly at odds with orthodox GT's modelling.

As an initial reaction to these anomalies[25], quite a few economists challenged the validity of the behavior observed in UGs. Two experimental concerns along these lines are worth mentioning: first, are UG anomalies no more than an artefact produced by the relatively small payoffs ("stakes") used in the laboratory (the so-called "high stakes argument")? And second, are UG anomalies an artefact arising from culture or, in other words, does the nationality of players' matter? In an effort to dispel the first concern, Hoffman, McCabe and Smith (1996) significantly raised the stakes and endowed proposers with $100 (compared to $10 in earlier experiments). Strikingly, raising the stakes by a factor of 10 did not generate significantly different UG proposal distributions (see also, Camerer & Hogarth, 1999). To address the second concern, Roth, Prasnikar, Zamir, and Okuno-Fujiwara (1991) ran UGs in four different countries around the world and found highly similar proposal distributions with modal proposals in the range of 40 to 50 percent of the proposers' initial endowments. Thus, both the high stakes and the cultural artefact argument can be considered empirically rebutted and UG anomalies deem valid, capturing a real phenomenon.

As a consequence, the UG proved highly influential in persuading economists to open windows to motives beyond utility-maximization, which is something – as Kahneman stated in

[23] For a more detailed introduction into ultimatum bargaining, see also Thaler (1992, Ch. 3).
[24] Proposers usually offer 40-50 percent (modal and median) of the initial endowment (the means are 30-40 %). Proposers rarely propose offers in the outlying categories of 0-10 percent and 51-100 percent. Responders rarely reject offers of 40–50 percent but reject offers below 20 percent about half the time.
[25] An empirical finding qualifies as an anomaly if it is difficult to "rationalize," or if one must make implausible assumptions to explain it within the framework of classical GT. See also Thaler (1988).

his Nobel Prize lecture – social psychologists never casted doubt on. But what are these motives? The prevalent answer is: concerns for equity (or fairness). Social utility models[26] demonstrated that there is a substantial amount of people not exclusively being interested in their own payoffs (i.e., nonsocial utility) but also deriving utility from another source, namely from the level of equity of payoff distributions (i.e., social utility). Social utility decreases when differences between own and others' payoffs increase.

Applied to the UG, this means that offering responders an unequal share reduces social utility for both responders and proposers (cf. Bethwaite and Tompkinson, 1996). As a consequence, responders may be averse to unequal shares, and especially so if they are unequal at the advantage of proposers (i.e., disadvantageous inequity for responders; cf. Loewenstein, Thompson, & Bazerman, 1989). Inequity aversion is one possible explanation for departures from strict payoff maximization in the UG. Note, however, that people have not only been found to be averse towards disadvantageous inequity but also towards advantageous inequity (i.e., inequity in favor of themselves), although the latter aversion seems usually weaker than the former (Loewenstein, Thompson, & Bazerman, 1989).

In an attempt to keep the mathematical apparatus of GT undamaged, economists (Fehr & Schmidt, 1999; Bolton & Ockenfels, 1998, 2000; Bolton, 1991; Charness & Rabin, 2002) embedded concerns for equity and fairness (i.e., social preferences[27]) into models of utility functions underlying players' behavior. These kinds of models are called social (or other-regarding) preference models and follow the aim of "rationalizing", that is, they assume social

[26] For further reading on social utility models, see Messick and Sentis (1985), Blount (1995), and De Dreu, Lualhati, and McCusker (1994). See also Buechel and Morewedge (2014) for a chapter discussing the relative versus absolute subjective value of money.

[27] In economics, the term "preferences" refers to the choices people make, particularly when facing tradeoffs between different compositions of outcomes they value (e.g. money). "Social preferences" refers to how people rank different allocations of (monetary) outcomes to self and others.

preferences to rationalize observed anomalies in economic games, and differ in the weight they assign to distinct types of social preferences. The Fehr and Schmidt model (1999), for instance, emphasizes the primary importance of inequity aversion, whereas Charness and Rabin (2002) followed a "Rawlsitarian"[28] approach and embedded social-welfare preferences[29] into their model. Simply put, Charness and Rabin (2002) assumed that players care about a combination of their own payoffs, the payoff of the worst-off player (following the Rawlsian maximin principle, cf. Rawls, 1971), and total payoffs, and also embedded a simple form of reciprocity[30] into their model (Charness & Rabin, 2000, 2002; see also Rabin, 1993).

It lies beyond the scope of this dissertation to discuss the strengths and weaknesses of the different social preference models, but it may be noted that there is no single universally accepted model which can explain all data on the UG (for a review comparing these models, see, e.g., Engelman & Strobel, 2004; see also, Cooper & Kagel, 2015)[31]. Nevertheless, there is a substantial amount of data in support of either inequality-aversion or social welfare/ reciprocity approaches. Clearly, fairness plays a role – whatever the exact construal of fairness may look like.

Blount (1995) illustrated the importance of fairness for ultimatum bargaining from a more psychological perspective by comparing rejection rates of offers randomly generated by a computer with those generated by a human proposer. The results were indeed striking: responders were more likely to accept low offers generated by a computer than the same offers

[28] An overview of Rawl's theory of justice (1971) goes beyond the scope of this dissertation. However, the interested reader is referred to Frohlich, Oppenheimer, and Eavey (1987) for both a comprehensive introduction into Rawl's theoretical considerations and experimental testing of these considerations.
[29] Social-welfare preferences imply the assumption that people are inclined to increase social surplus and are especially concerned with helping those (themselves or others) who are worst-off in terms of welfare.
[30] Reciprocity means people's willingness to reward friendly actions and to punish hostile actions although the reward or punishment is costly to them.
[31] For an intriguing working paper challenging the idea of inequity aversion, see also, Binmore and Shaked (2007).

generated by a human proposer, who would have benefitted from this inequity. However, a taste for fairness appears to be not the only possible motive underlying responders' inclination to reject low offers proposed by human agents. In fact, the findings of Blount (1995) suggest that responders explicitly punish unfair behavior (a computer does not "behave") and are not merely rejecting inequity. This again suggests that also emotions like anger, frustration, or indignation may play a role in explaining responders' behavior in the UG (cf. Yamagishi et al., 2009; Pillutla & Murnighan, 1996; Sanfey, Rilling, Aronson, Nystrom, & Cohen, 2003; Civai, Corradi-Dell'Acqua, Gamer, & Rumiati, 2010), and my underlie the urge of punishing unfair treatment. Moreover, theory of altruistic punishment (Fehr & Gächter, 2002) explicitly suggests that rejecting unfair offers is a means to an end for penalizing selfish behavior of others (i.e., proposers) – even if it is costly and does not at all benefit the punisher in monetary terms (which is the case when the UG is played single-shot).

Although most striking, high rejection rates for unfair offers are not the only anomaly in the UG requiring a (psychological) explanation. The second anomaly consists in proposers usually not daring to propose the smallest possible positive amount (i.e., the rational offer) in the first place (Camerer, 2003) – although rational proposers should expect rational responders to accept any non-zero offer. There are two possible explanations for this. First, proposers also may be concerned with fairness. Second, proposers simply may fear the risk of responders rejecting their unfair offers (or a combination of both). This confound can be addressed by examining proposers' offering decisions in a reduced form of the UG.

Further simplifying the Ultimatum Game: the Dictator Game

The Dictator Game (DG) leaves out the second step of the UG, that is, responders' ability to reject offers is removed (Forsythe, Horowitz, Savin, & Sefton, 1994; see also, Kahneman,

Knetsch, & Thaler, 1986) [32]. Thus, responders remain completely passive and there is literally no action space left for them. Proposers' action space, however, remains complete. They can make the same set of offers as in the UG without the risk of these offers being rejected. In other words, the game is stripped of the punishment component and "played" only by the proposer. Seen from this angle, the "game" label is technically a misnomer, and so are the labels "proposer" and "responder". Instead, the DG models a single-person decision task in which the proposer dictates instead of offers and the responder is not allowed to respond at all. Thus, I will hereafter refer to the proposer as dictator and to the responder as receiver. As the UG, the DG is usually played in isolation with both players remaining anonymous. This feature in combination with the absence of the punishment component makes the DG an ideal vehicle for investigating the question of what essentially motivates people to allocate parts of their endowments to others.

From the perspective of strict utility maximization, no such motivation should exist rendering the predictions for DG behavior even simpler than those for UG behavior: rational dictators should allocate nothing to receivers (see also, Friedman & Savage, 1948). Nevertheless, dictators typically depart from strict utility maximization and frequently allocate a substantial portion of their initial endowments to receivers (Forsythe et al., 1994). More specifically, dictators typically dictate allocations that assign receivers an amount just under 30 percent[33] of their initial endowments (for a recent meta-analysis, see Engel, 2011).

[32] Kahneman, Knetsch, & Thaler (1986) gave students in a classroom experiment the choice (albeit hypothetical) of either dictating an even split of $20 with another student or an uneven split ($18, $2), in favor of themselves. Three-quarters of the students chose the equal split. This was the first DG reported in the literature.

[33] The meta-analysis by Engel (2011) covers 129 papers, testing a total of 616 different DG treatments. Overall, 63.89 percent of participants in the role of dictators allocate money to receivers. For those who allocate money, the average amount represents 42.64 percent of the initial endowment. Note, however, that this also means that more than a third of dictators exploits the opportunity of being exclusively selfish and those who do allocate money still exploit this opportunity to some degree. Moreover, Engel (2011) reported that there is a high degree of behavioral heterogeneity in DG treatments with considerable variation in the allocated money amount across demographic groups and different cultures. For further reviews on dictator giving, see Roth (1995) and Camerer (2003).

However, although most dictators do allocate positive amounts to receivers, these allocations are much lower than typical proposers' offers in the UG (cf. Forsythe et al., 1994). Thus, dictator giving is, on average, less fair than offering in the UG. This leads back to the question posed above on whether proposers in the UG care for fairness or are merely afraid of their offers being rejected. Apparently, the answer is a combination of both motives. Fear of rejection must be part of the explanation for proposers' generous offers because they choose to allocate substantially less when this fear is longer not warranted (see also, Nelissen, Leliveld, van Dijk, & Zeelenberg, 2011). At the same time, however, fear of rejection cannot be the entire explanation because mean allocations of almost 30 percent in the DG imply that there are at least some non-monetary concerns involved. The bottom line, in Camerer's words (2003), is "that proposers are being both strategic (avoiding more to avoid rejection) and altruistic[34]" (p. 56).

Still, there is increasing evidence suggesting that DG giving does not primarily reflect altruism but rather the degree of willingness to conform to a perceived social norm of appropriate behavior (Andreoni & Bernheim, 2009; Krupka & Weber, 2013; Camerer, 2014), and there is also evidence suggesting that DG giving is primarily driven by guilt (e.g., Ellingsen, Johannesson, Tjøtta, & Torsvik, 2010).

Moreover, it is worth noting that DG giving cannot simply be interpreted as a demand effect in the sense that dictators allocate something because they are being observed by the experimenter and believe that giving is what the experimenter expects them to do. This interpretation can be ruled out in "double-blind" DG experiments in which dictators are ensured that the experimenter never will be informed about their decisions (cf. Hoffman, McCabe, Shachat, & Smith, 1994; Hoffman, McCabe, & Smith, 1996b). Although Hoffman et al. (1994)

[34] Altruism here refers to dictators taking costly actions to increase the payoff of receivers, irrespective of receivers' previous actions. Altruism thus represents unconditional kindness and is different from reciprocity.

initially observed a decrease in dictator giving, subsequent research has shown that the effect of double-blindness is only weak – if at all existing (Bolton, Katok, & Zwick, 1998)[35].

For most economists, investigating methodological variables such as anonymity and experimenter "blindness", raising the stakes (e.g., Carpenter, Verhoogen, & Burks 2005), and repetition (i.e., playing the game for more than one round, cf. List & Cherry, 2000; Bolton & Zwick, 1995) in both DGs and UGs was of primary interest for many years because economists were eager to reconcile the puzzling anomalies with orthodox economic assumptions of strict utility maximization – ideally by way of eliminating them. In other words, economists wanted to find explanations for why people were acting so foolishly. Unfortunately, all these vigorous efforts failed and none of these variables resolved the puzzle in favor of strictly utility maximizing homo economicus (cf. Henrich et al., 2005). Psychologist, on the other hand, were primarily interested in shedding light on the (social) cognitive and interpersonal processes (e.g., emotions, expectations, intentions, learning, and personality traits) shaping and motivating behavior in UGs and DGs (e.g., Frith & Singer, 2008; see also, Crusius, van Horen, Mussweiler, 2012). In the following, I argue that psychologists may even go further by regarding UGs and DGs as mere experimental vehicles for gaining broader insights into the nature of social behavior.

Laboratory Ultimatum and Dictator Games as rigorous models for a wide range of social interactions

Ultimatum bargaining and dictator giving may, at first glance, appear overly artificial, not conveying any relevance to social behavior in the real world, whereas actually the opposite is true. In fact, UGs and DGs model a wide range of complex social interactions – from the micro

[35] In UGs, the effect of double blindness is even smaller and lowers responders' rejections only very slightly (Bolton & Zwick, 1995).

level of people's everyday decision-making to the macro level of global politics. Ultimatum bargaining, on the one side, reflects all kinds of exchange situations in which a person (or partners, a group, a firm, or a nation) is confronted with the opportunity of dividing an outcome amount between herself and one or more other persons – on condition that others agree on the deal. These outcomes literally can be anything this person values (e.g., food, money, power, time, prestige, control, respect, a sense of justice). Thus, real life situations reflecting ultimatum bargaining are virtually omnipresent. Examples are settlement offers before a time deadline, negotiations regarding prices on commodities exchanges, monopolists setting wages, negotiating the terms of marriage, labor management strikes, attempts to settle lawsuits before trial, costly divorce proceedings, custody battles, or efforts to get a better deal for the last pound of cheese at the local farmer's market.

Dictator giving, on the other side, models a single-person outcome division task without the decision maker being dependent on another person agreeing on the chosen division. These kinds of situations occur no less frequently in social life than situations reflecting ultimatum bargaining. Examples for dictator giving in the real world are donating to charities, engaging in prosocial or volunteering behavior, granting financial provisions and aid, sharing of a windfall game, or even the mundane decisions of daily life such as whether or not to tip the waiter in a restaurant one will never visit again. To put it in the words of Bardsley (2008), "we face the dictator game all day every day" (p. 123).

Because of the sheer complexity of all these naturally occurring UG and DG situations, an observed decision in favor of a given outcome may be attributed to many possible causes. Employing UGs and DGs as tasks in the laboratory, however, circumvents this complexity and thereby allows for causal inferences between observed decisions and the psychological

mechanisms driving it. Moreover, UGs and DGs allow for direct manipulations, control over confounding variables, transparency, replication, comparisons across participant pools, and score highly on conventional standards of external validity (cf. Franzen & Pointer, 2013; Camerer, 2014). In short, they allow rigorous state-of-the-art empirical investigation.

Their simple structure is a further asset of UGs and DGs, making it easy to implement small modifications changing specific psychological aspect along with maintaining the incentive structure (e.g., playing repeatedly vs. one-shot and playing anonymously vs. publicly). Such modifications carve out the precise impact of a given modification on behavior. In addition, UGs and DGs easily can be accommodated with other measurements (e.g., physiological measures such as heart rate) and may also be implemented to complement and validate self-reports because they offer sharper operationalization's of somewhat "slippery" constructs (e.g., altruism; cf. Camerer & Fehr, 2004). In sum, UGs and DGs allow researchers to strip down a wide range of complex social interactions and decision-making conflicts in the real word and to disentangle and scrutinize the distinct psychological mechanisms driving behavior in these situations. That is, whatever one discovers about the regularities of behavior in UGs and DGs, goes beyond behavior in these games, and fosters understanding of overall exchange and decision-making behavior. Seen from this angle, UGs and DGs are just experimental vehicles for gaining broader insights into the nature of social behavior.

Given this huge experimental asset of UGs and DGs, it appears striking that they are still relatively underutilized in social cognition research compared to implicit associations tests, priming tasks, or dual process tasks (for on overview of implicit measurements, see de Houwer, 2006; see also Banse & Greenwald, 2007). Economists, on the other hand, employed UGs and DGs so often that it would exceed space constraints to provide a complete overview here (see the

reviews by Güth & Kocher, 2014; Mousazadeh & Izadkhah, 2015; Henrich et al., 2005; Oosterbeek, Sloof, & Van De Kuilen, 2004). Still, over the past decades, interest and research activity in employing UGs and DGs in social cognition research have been growing steadily, providing an interesting body of knowledge. Mainly these research approaches can be categorized as combinations of UGs or DGs with priming manipulations and as combinations of UGs or DGs with dual process tasks. I now give an overview of some key findings in this regard and briefly outline the insights regarding overall social behavior that can be obtained from this work.

Integrating Ultimatum and Dictator Games with implicit measurements

Dual process tasks. Halali, Bereby-Meyer and Ockenfels (2013), for instance, investigated the effect of self-control depletion on UG proposers and DG allocators and found that diminished cognitive control caused proposers to offer significantly more fair offers than non-depleted proposers, whereas depleted dictators opted for the equal split significantly less often than non-depleted dictators (see also, Halali, Bereby-Meyer, & Meiran, 2014; Cappelletti, Güth, & Ploner, 2008; Rand, Brescoll, & Everett, 2016). That is, Halali et al. (2013) found a reversed effect of reduced self-control on bargaining versus dictating behavior and thus argue that depleted UG proposers' higher fairness may reflect an automatic (selfish) fear of rejection rather than an automatic fairness tendency. However, Schulz, Fischbacher, Thöni and Utikal (2014) also measured the influence of varying degrees of cognitive load on dictator giving and found that participants under high (vs. low) cognitive load sent higher money amounts in DGs and suggest that deliberation adjusts behavior in favor of self-interest rather than automaticity[36].

[36] See also Hauge, Brekke, Johansson, Johansson-Stenman, and Svedsäter (2009) and Cornelissen, Dewitte, and Warlop (2011) for similar approaches.

Moreover, Morewedge, Krishnamurti, and Ariely (2014) investigated the influence of intoxication on responses to unfair offers and on the propensity to propose unfair offers in the UG and showed that intoxicated (vs. sober) responders more often rejected unfair offers, while intoxication did not affect proposers' offering decisions. Further research is clearly needed to clarify and integrate these diverging findings. However, they still suggest a crucial impact of deliberation processes on fairness preferences in social interactions and (economic) decision-making and underline the overall importance of cognitive functions and operations in this regard. People thus may decide fairly merely because they are under time pressure, and, vice versa, may decide unfairly because they just came back from vacation and feel fully recovered.

Priming tasks. Shariff and Norenzayan (2007), for instance, combined the implicit priming of God concepts with the DG and found that religious priming increased DG giving. Smeesters, Wheeler and Kay (2009), on the other hand, showed that priming with words related to the concept of unkindness (vs. neutral words) decreased DG giving. In a related vein, Kay, Wheeler, Bargh, and Ross (2004) demonstrated that exposure to business objects increased the accessibility of the construct of competition, which in turn decreased the money amount offered by proposers in the UG, while Zürn and Strack (2017) found that priming consumption did not influence the money amount offered by proposers. However, Zürn and Strack (2017) did find an effect of priming consumption on responders. Specifically, they found that consumption priming decreased responders' rejections of unfair offers in the UG, whereas responders' reaction times for accepting unfair offers increased. Furthermore, Haley and Fessler (2005) were the first to investigate the influence of placing eye-like stimuli in dictators' environment during a DG and found an increase in DG giving (for a meta-analysis of the studies of watching eye effects in DGs, see also Nettle et al., 2013). Harlé and Sanfey (2007) investigated the impact of inductions

of incidental moods on responder behavior in the UG and found that induced sadness led to lower acceptance rates of unfair offers.

Going beyond priming manipulations and elucidating the influence of accessibility, Croson (1996), for instance, showed that withholding information about the size of the proposers' initial endowment from responders led to proposers offering lower money amounts. In a related vein, Handgraaf, Dijk, Wilke, and Vermunt (2004) examined the influence of varying the accessibility of interpersonal comparisons in the UG and found that acceptance rates for unfair offers increased when the payoffs of proposers and responders were different types of lottery tickets and thus more difficult to compare.

In sum, priming of specific (social) constructs and accessibility of specific cognitive processes shapes behavior in UGs and DGs and can tip the scales in favor of higher fairness or an increase in self-interest. Applied to real-world economic decision-making, this suggests a crucial influence of decision-makers' states, both mentally and environmentally, on their fairness preferences. People thus may decide unfairly merely because they were treated unkindly by their bosses or spouses before, and, vice versa, may decide fairly because they just spotted a security camera[37].

A further model for social interactions: the Trust Game

In addition to UGs and DGs, there is a further economic game receiving growing attention in social cognition research, namely the Trust Game (TG). Initially introduced by Berg, Dickhaut, and McCabe (1995), the TG adds a further stage to the DG and thus models a more complex social exchange situation. First, allocators (called trustors) are endowed with a certain money amount and can either keep this endowment or send any proportion of the endowment

[37] For a review regarding the influence of automatic cognitive processes and implicit primes on bargaining, see also Bazerman, Curhan, Moore, and Valley (2000).

(called an investment) to receivers (called trustees). This stage is the "DG stage". However, in the TG, the investment is multiplied by a known factor x (e.g. 2), so that the trustee receives more than the trustor has initially sent (e.g., $2 for every $1 sent by the trustor). Then, there is a next stage in which the trustee determines how much of the investment sent multiplied by 2 to return to the trustor.

If both trustor and trustee were strict utility maximizers, the trustee should choose to return no money and, anticipating this, the trustee should send no money in the first place (Berg, Dick, & McCabe, 1995). However, on average, neither trustees' nor trustors' behavior complies with strict utility maximization. There are often even surprisingly high shares of money sent by trustors (an operationalization of trust) and also surprisingly high shares returned by trustees (an operationalization of reciprocity) – even in case of trustors initially being endowed with very high money amounts and both players remaining anonymous (for a meta-analysis, see Johnson & Mislin, 2011). The TG has stimulated a vast amount of research in economics and was investigated under all kinds of conditions and with various populations (e.g., Cox, 2004; Ashraf, Bohnet, & Piankov, 2006; Bohnet, Greig, Herrmann, & Zeckhauser, 2008; Greiner, Ockenfels, & Werner, 2012). In social cognition research, interest in the TG grew steadily in the last decade and there is relatively more social cognition research employing the TG compared to the UG or the DG, which may be due to the fact that trust is one of the most important social concepts and present in all social interactions (cf. Gambetta, 1990). Providing a complete overview of the work connecting social cognition paradigms with the TG would go beyond the scope of this dissertation which primarily focuses on UGs and DGs. Nevertheless, I now provide some examples of research connecting the TG with social cognition research.

Several studies showed, for instance, that facial expressions of trustees (Krumbhuber et al., 2007), their attractiveness (Wilson & Eckel, 2006), the width of their faces (Stirrat & Perrett, 2010), or facial resemblance between trustors and trustees (DeBruine, 2002), influenced trustors' investments in TGs. Turning to more standard social cognition manipulations, Posten, Ockenfels, and Mussweiler (2014), were the first to combine the TG behavior with a subliminal priming procedure. Specifically, Posten et al. (2014) used a lexical decision task to activate trust (vs. distrust) in trustors and then had them play a hypothetical TG. They found that the subtle priming of trust caused trustors to send higher money amounts to trustees suggesting that the mere activation of specific cognitive contents influences the initial beliefs people form about the trustworthiness of others.

Employing a different standard manipulation from social cognition research, Zürn and Topolinski (2017) combined the TG with the mere ease of processing some stimulus (i.e., fluency). Specifically, Zürn and Topolinski (2017) manipulated fluency via pronounceability and length of trustees' names and showed that trustors sent higher money amounts (both hypothetical and real) to trustees with fluent names compared to trustees with disfluent names. The findings of Posten et al. (2014) and Zürn and Topolinski (2017) highlight the crucial role of cognitive processes in day-to-day trusting interactions, and, most importantly, illustrate how fragile trust can be and how readily it can be reduced by detrimental cues in the environment.

Erle, Ruessmann, and Topolinski (2018) developed yet another novel research question by connecting the TG with a cognitive process that has so far been neglected within the realm of economic games: visuo-spatial perspective-taking. In visuo-spatial perspective-taking tasks, perspective-taking is triggered in a literal sense (as opposed to a metaphorical sense) by instructing participants to adopt the visuo-spatial perspective of a given social target (cf. Kessler

& Thomson, 2010). Specifically, participants saw a target setting on the opposite side of a table with two different objects being placed to the right and the left of the target. Then, participants were asked to specify the location (right vs. left) of one of the objects either from their own perspective (egocentric) or from the target's perspective (other-centered). Mastering the other-centered perspective required participants to mentally rotate into the target and thereby adopt the target's visuo-spatial perspective (cf. Kessler & Thomson, 2010).

In three experiments, Erle et al. (2018) investigated the influence of visuo-spatial perspective-taking on trust in strangers and known interaction partners. Most importantly, in two of these experiments the TG was implemented as a behavioral measure of trust. In Experiment 2 (Erle et al., 2018), participants were first instructed to complete a visuo-spatial perspective-taking trial and afterwards instructed to adopt the role of the trustor in a hypothetical TG with the target of the perspective-taking task in the role of the trustee. In Experiment 3 (Erle et al., 2018), participants completed the same tasks in the same order, this time however, they also received information about the trustees' behavior in past TGs (cooperative vs. competitive).

The results of Experiment 2 (Erle et al., 2018) indicated that adopting the trustees' visuo-spatial perspective increased behavioral trust in the TG, that is, participants sent higher money amounts to trustees during perspective-taking trials than during egocentric trials. Specifically, this effect was found to be completely mediated by increased liking of the trustee after visuo-spatial perspective-taking. The results of Experiment 3 (Erle et al., 2018), however, also suggest a clear boundary condition to the effects of perspective-taking on trust, namely the accessibility of objective information about trustees' history of trustworthiness. In presence of this information, perspective-taking no longer affected behavioral trust in the TG, but still influenced self-reported trust and liking of trustees. In sum, Erle et al. (2018) shifted the focus from why

trustors in the TG choose to trust in the first place to how their levels of behavioral trust can be increased – without changing anything about the trustee (e.g., attractiveness, name), which is what most research before focused on (see above; except for Posten et al., 2014). Specifically, Erle et al. (2018) introduced a novel mental process (i.e., visuo-spatial perspective-taking) increasing trust in other people which readily can be applied in a wide range of social interactions, irrespective of interaction partners' looks or other superficial cues. Most importantly, the work by Erle et al. (2018) illustrates how the TG can be employed to learn about social behavior in general and not only about behavior narrowed to the game itself.

Thus, the work by Erle et al. (2018) contributes to a crucial shift of focus I strongly advocate for in this dissertation: the shift from research studying anomalies in economic games to research employing economic as well-suited paradigms to inform the understanding of a broad range of social behavior. Economic games should be treated as research tools rather than as research objects.

Aim of the present dissertation

Up to this point, I gave a brief overview of the historical emergence of BE and its associated methodology of economic games. I further provided key examples of research investigating economic games and attempting to rebut the puzzling behavioral anomalies emerging in them. More specifically, research in this vein, typically started with an assumed or demonstrated violation of a prevalent (neoclassical) economic assumption (i.e., an anomaly) and then aimed to provide a psychological explanation for the given violation. I argue that the result of such an approach is conceptual narrowness disregarding central psychological concepts which are not necessarily unveiled or affected by these violations. By now, anomalies in economic games are considered robust phenomena (e.g., Camerer & Thaler, 1995) and as such common

knowledge in BE. Continuing to confine BE research to investigating anomalies in games does not advance the field but rather perpetuate its conceptual narrowness.

I therefore propose that addressing anomalies in games should no longer be the focal goal of research employing economic games. Instead, the focal goal should be to employ economic games as vehicles in order to foster understanding of the psychological mechanisms underlying social interactions and decision-making behavior in general. As I have argued on pages X – X, economic games are rigorous models for a wide range of social interactions and researchers, as of now, should primarily treat them as such. Social cognition research does not employ a specific paradigm in order to understand the paradigm, it uses the paradigms as a means to understand overall social behavior. Thus, for future (social cognition) research employing economic games, a crucial shift of methodological focus is required. There are already some examples of research heading in this direction, which I outlined on pages 23–29. However, most of these examples focused on connecting economic games with standard social cognition manipulations in order to understand the effects of a given manipulation within the scope of a given game, that is, they explored whether anomalies can be toned down by the right manipulation. This is clearly a step in the direction I advocate for, however, I argue that my research even went further. Precisely, my research connected economic games with social cognition paradigms going beyond semantic and affective priming or cognitive load manipulations (which are mainly employed at the level of the proposer and dictator).

In Chapter 3, I shift the focus from why responders in the UG decide to reject or accept a given offer to how their behavior may unveil the interplay of social distance and outcome value in decision-making for others. In doing so, I employ the UG as a tool to realize different levels of social distance and outcome value. In Chapter 4, I shift the focus from why dictators in the DG

decide to send a given amount of money to how these decisions may inform and shape social perception, and hence employ the DG as a vehicle to realize different, observable levels of behavioral fairness. Thus, in both these chapters, I do not primarily aim to foster further understanding of UG or DG behavior as such, but rather aim to contribute to the understanding of universal psychological concepts such as favoritism (Chapter 3) and stereotypes (Chapter 4) with two novel paradigms, each emerging from the connection of social cognition research with an economic game.

Chapter 3 connects the social cognitive concept of social distance (which is one of the four dimensions of psychological distance, cf. Trope & Liberman, 2010) with the UG. In 11 experiments (total $N = 1653$), I investigate the impact of social distance on decision-making for others and cross this with the value of the outcome to be decided about. More precisely, participants decide on disadvantageous and advantageous distributions proposed to themselves, friends, and more distant clients (such as strangers) in hypothetical UGs. In disadvantageous distributions, responders are offered less than 50 percent of proposers' initial endowment – an unfair offer. In advantageous distributions, responders are offered more than 50 percent of the proposers' initial endowment – a hyper-fair offer (cf. Henrich et al., 2005). I show that participants systematically accept more hyper-fair offers for themselves and close clients than for distant clients (i.e., client privileging), while social distance does not affect acceptance rates for unfair offers (Experiments 1a – 5b). I further test the affective mechanisms driving this client privileging effect and gauge the causal roles of both envy (Experiments 6a and 6b) and joy for others (Experiment 7). Finally, I show that it is indeed joy for others that is driving client privileging, while envy does not explain this effect. These findings suggest a crucial role of social distance and social emotions in economic decision-making.

Chapter 4 introduces yet another novel realm of research that emerges by connecting economic games with social cognition, that is, the study of social perception in the DG. Going beyond research showing that "the personality of the player matters" (Boone, De Brabander, & van Witteloostuijn, 1999, p. 367; see also Zhao & Smilie, 2015), I shift the focal question of DG research from why dictators decide to send money to receivers (vs. not) to how these decisions may inform and shape social perception. More specifically, Chapter 4 explores the bi-directional relations observers infer between dictators' behaviors (i.e., money amount sent to receivers), stereotype dimensions, and personality traits in hypothetical DGs. In six experiments (total N = 905), I show that observers perceive unfair – but utility maximizing – dictators as more agentic and conservative, but less communal, less liberal, and less intelligent than fair – but not utility maximizing – dictators (Experiments 1a and 1b). Moreover, and to rebut the simple explanations of inferences from one positive trait (i.e., fair behavior) to other positive traits (Gräf & Unkelbach, 2016, 2018), I present participants with personality profiles and ask them to predict such dictators' behavior in a DG. Again, participants expect more conservative, less communal, or less intelligent dictators to send less money to receivers compared to more liberal, more communal, or more intelligent dictators (Experiment 2 and Supplementary Materials Experiments 4a and 4b).

Finally, I investigate factual correlations between overt behavior and personality traits by assessing participants' own monetary decisions in DGs employing real money, and self-reports on the stereotype dimensions, as well as short intelligence screening tests (Experiments 3a-3c). In these studies, only self-reported communion/warmth emerges as a stable correlation between money amount sent in the DG and self-reports, whereas agency, political orientation, and intelligence do not. In sum, Chapter 4 illustrates that people's displayed fairness level in the DG

influences how observers socially perceive, and, vice versa, that outlining people's characteristics regarding specific personality traits influences the fairness level observers anticipate in the DG. These findings suggest a crucial role of evaluation apprehension in economic decisions. Moreover, I show that utility maximizing behavior in the DG is not only perceived as unfair but also as unintelligent, which further contributes to unveiling the whole picture of why people may avoid displaying narrow self-interest in economic games – from a process-oriented perspective.

Chapter 3 – Economic decisions for others are more favorable for close than distant clients

Abstract

The present research investigates the role of social distance between decision makers and their clients. In 11 experiments (total $N = 1653$), participants decided about unfair and hyper-fair offers in an advisor game for themselves or for a client who varied in social distance (e.g., for a close friend vs. a stranger). Participants were strongly influenced by client identity. They systematically accepted more hyper-fair offers for themselves and close clients than for distant clients, while client identity played no role in unfair offers. We show that the driving mechanism of this client privileging effect is joy (happy-for-ness) participants experience particularly for close clients, while envy did not explain this effect. Across all types of clients and experiments, hyper-fair offers were accepted at only 86 % which can only be explained by participants being not exclusively motivated by absolute monetary payoffs but also, to some extent, factoring in non-monetary concerns.

Keywords: self-other decision-making, social distance, joy for others, social comparison

Introduction

In matters of great importance that bear legal, medical, or financial consequences, outsourcing decisions to others is a common and highly adaptive course of action. Individuals consult lawyers, appoint a financial advisor, or even allow a surrogate to manage end-of-life medical care. These instances vary in terms of the degree of responsibility that is put on the other person, ranging from full (the other person de facto makes the decision) to partial (the other person gives advice on a decision). In vocational settings, the latter is more common than the former. In fact, as of 2010, more than half of all American households sought advice from a financial professional (Matvos & Seru, 2016). Whenever we put decisions into the hands of someone else, we do so trusting that they will decide in our best interests. But is this trust warranted? In a 2016 poll conducted by the American Association of Individual Investors (AAII), 65 % of Americans do not trust their financial advisors to act in their best interests, and that is a considerably high number, which should cast some doubt. Fortunately, as of June 2017, there are novel protective measures in place to ensure Americans' financial well-being. Due to the implementation of the so-called Fiduciary Rule (*The Economist,* 2017), financial advisors are required to act in their clients' best interests, and to put their clients' interests above their own in all circumstances.

A growing body of research in psychology and related fields has explored the differences between making decisions for the self versus for others (see, for instance, Kray & Gonzales, 1999; Pronin, Olivola, & Kennedy, 2008; Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006; Garcia-Retamero & Galesic, 2012; Petrova, Garcia-Retamero, & van der Pligt, 2016). For one, there is some evidence that decision-making for others can be a very thorough process. In particular, individuals deciding for others (vs. themselves) examine and search for more information (Jonas

& Frey, 2003; Kray, 2000), prefer more choice options (Polman, 2012a), render both a more exhaustive attribute- and alternative-search (Polman, 2010; Liu, Polman, Liu, & Jiao, 2018), and are even more creative (Polman & Emich, 2011). Moreover, when deciding for others (vs. themselves), individuals are more concerned with justifying their decisions to others (Lu, Liang, & Duan, 2017), and also tend to focus more on desirability than on feasibility (Lu, Xie, & Xu, 2012). In the domain of risky decision-making, decisions on behalf of others have been found to be both more and less risky than decisions made for the self or equal to decisions for the self (for a recent meta-analysis, see Polman & Wu, submitted). For instance, in risky decision-making scenarios with monetary payoffs (both hypothetical and actual), no differences between deciding for a friend versus for the self were found (e.g., Stone, Yates, & Caruthers, 2002). In contrast, in physical safety scenarios, individuals tend to make different, that is more risk-averse, decisions for friends than for themselves (Stone, Choi, De Bruin, & Mandel, 2013). Social values theory (Stone & Allgaier, 2008; Dore, Stone, & Buchanan, 2014) explains these differences by stating that risky decision-making for others is predominantly shaped by norms prescribing which decision alternative is the most socially sanctioned one. Thus, in scenarios in which risk is considered a value, individuals tend to make more risk seeking decisions for others than for the self (Stone & Allgaier, 2008).

Other findings offer insight into the emotional involvement of individuals deciding for others, and show, for instance, that individuals deciding for others experience lower loss aversion (Polman, 2012b; Liu, Wang, Yao, Yang, & Wang, 2017; Andersson, Holm, Tyran, & Wengström, 2014), and feel less fatigue after decision-making (Polman & Vohs, 2016). In line with this, research has shown that the endowment effect, that is, sellers – as compared to buyers – ascribing more value to things merely because they own them, disappears when individuals

made decisions for others in the role of brokers (Zhang, Zhang, & Li, 2016). Furthermore, individuals deciding for others (vs. themselves) are more willing to make changes from their current states of affair, which implies that they are less susceptible to the status quo effect (Lu & Xie, 2014). In addition to differences in emotional involvement, research also showed differences in goal focus between decision-making for others versus for the self by suggesting that individuals' choices for others are more indulgent and pleasure-seeking (Laran, 2010), and also more variety-seeking (Choi, Kim, Choi, & Yi, 2006). Despite the numerous differences between decision-making for others versus the self, some findings suggest that there are also crucial similarities. Within the scope of distributive justice, for instance, both decisions for the self and others are concerned with the "maximin principle", that is, trying to maximize the minimum possible payoff for both themselves and others (Kameda et al., 2016).

The identity of the client: social distance and in-group favoritism

Strikingly, however, researchers only recently began to investigate how decisions for others are influenced by the social relation, which can be located on a continuum of social distance (for a recent review on psychological distance, see Trope & Liberman, 2010), between a decision recipient and a decision maker (cf. Montinari & Rancan, 2013; Greenstein & Xu, 2015). Based on classical evidence on in-group favoritism, that is, individuals habitually acting more favorably towards those they share any form of group membership with (Tajfel, Billig, Bundy, & Flament, 1971; Tajfel, 2010), a possible prediction could be that individuals deciding for others should also act more favorably on behalf of those others they have a close, rather than a distant, social relationship with. In-group favoritism can be expressed in many ways (cf. Brewer, 1979; Brewer, 1999; for a recent review, see also Dunham, 2018), among them, and most importantly for the present agenda, in allocation of resources. Individuals, on the average, allocate more

resources to in-group than out-group members, even if the distinction between groups is completely arbitrary (Tajfel, 1970). A defining feature of in-group favoritism as conceptualized in Tajfel's work is that it necessarily entails favoring one group at the expense of another group. In line with this conceptualization, research showed that best friends are treated preferentially when individuals allocate money to either themselves, a friend, an acquaintance, or a stranger, with the latter bearing the expense of the former (Aron, Aron, Tudor, & Nelson, 1991), and are even willing to forgo a hypothetical amount of money for themselves in order to give $75 to a close person, which means that individuals bear the expense themselves (Jones & Rachlin, 2006).

Going beyond these contributions, we want to tackle favoritism from a different angle, that is, we want to explore whether favoritism persists under circumstances that are meant to enforce equality and fairness. Under such circumstances, resources are not scarce and individuals are not asked to allocate resources between themselves and/or other individuals but to make decisions on behalf of these individuals' with only those other individuals' interest in mind and without another individual or group bearing the expense of a favorable decision. We hypothesize that even in such situations void of favoritism as an objective or rational reason, individuals cannot help but make more generous decisions on behalf of those they have a close as compared to a more distant social relationship with. We propose to term this type of behavior *in-group privileging*, in order to clearly demarcate it from in-group favoritism: whereas in-group favoritism is limited to decision-making that takes place between at least two other individuals, since it necessarily means favoring one individual over the other, in-group privileging can also emerge in decision-making on behalf of a single other individual.

However, one could also hypothesize that a smaller social distance between decision maker and decision recipient might be rather harmful than beneficial for the decision recipient

and that privileging is more likely to occur on behalf of an out-group as compared to an in-group member. In fact, in his self-evaluation maintenance model, Tesser (1988) argues that in certain contexts individuals tend to even favor distant over close others, since close others are more relevant social comparison standards than distant others and thus may evoke more envy (Tesser, 1988). We envy our neighbor next door more than an anonymous resident in another part of the town. This is in line with Kindleberger's (1978) observation stating that "there is nothing so disturbing to one's well-being and judgment as to see a friend get rich" (p. 25) and leads to contradicting predictions compared to in-group favoritism theory (Tajfel et al., 1971). This is ultimately an empirical question; and we will discuss this in the General Discussion in the light of our findings.

Aim of Chapter 3

We explore the impact of social distance on decision-making for others and cross this with the value of the outcome to be decided about. In a nutshell, we let participants decide on disadvantageous and advantageous distributions proposed to themselves, friends, and more distant clients (such as strangers). We predicted that participants would treat themselves and close clients more favorably than distant clients, accepting more advantageous offers for the former than the latter.

To test this, we used a modified version of the ultimatum game (Güth, Schmittberger, & Schwarze, 1982), hereafter advisor game. In the standard ultimatum game (UG), a proposer proposes a distribution of a fixed amount of money between herself and the responder; and the responder decides whether to accept or reject the offer. If the responder accepts an offer, both the responder and the proposer receive their corresponding shares; but if the responder rejects an offer, neither of the two receives any gain. The classical finding here is that responders generally

reject offers that are inequitable (cf. Friedman & Savage, 1948; Thaler, 1988). The UG allows straightforward manipulations of both advisor-client distance and outcome value.

We manipulated client identity by letting participants play the role of the responder and instructing them that they would decide on offers either for themselves or on behalf of a client of varying social distance (e.g., a close friend vs. a stranger). If participants accepted a given offer for themselves, they and the proposer would receive their corresponding shares. If, however, participants accepted a given offer for their clients, only their clients and the proposer would receive their corresponding shares, whereas the participants would not receive anything at all. This basic fact rules out that participants making decisions for their clients could be driven by the motivation to gain monetary profit.

We manipulated outcome value (good vs. bad deals) by exploring the decisions for *unfair* and *hyper-fair* offers. In unfair offers, the responder is offered less than 50 % of the total amount of money – a disadvantageous distribution. In hyper-fair offers (Henrich et al., 2001; Falk, Fehr, & Fischbacher, 2003; Hennig-Schmidt, Li, & Yang, 2008), the responder is offered more than 50 % of the total amount of money – an advantageous distribution. Exploring decision-making for others within the domain of hyper-fair offers provides an especially important contribution of the present work for two reasons. First, rejecting hyper-fair offers is a relevant yet neglected phenomenon (for a review see Hennig-Schmidt et al., 2008). Second, and more crucially, hyper-fair offers are detrimental to the proposer and thus constitute a conflict between monetary and motivational (i.e., treating the proposer fairly) incentives. We predict that this conflict is solved differently depending on for whom a decision is made. Previous research has already investigated the effects of playing the UG on behalf of a third party within the domain of unfair offers and demonstrated that participants reject unfair offers equally often regardless of whether

they decide for themselves or on behalf of a third party (Civai, Corradi-Dell'Acqua, Gamer, & Rumiati, 2010; Corradi-Dell'Acqua, Civai, Rumiati, & Fink, 2013). It is noteworthy that third parties in these previous studies were anonymous participants acting as responders in the next experimental sessions. Moreover, it is noteworthy that in these studies UG trials were intermingled by a so-called Free-Win task, in which participants were offered the same amount of money as in the UG trial without the proposer being involved and that, due to fMRI and skin conductance measurements, sample sizes were rather small ($N = 34$, and $N = 23$; Civai et al., 2010; Corradi-Dell'Acqua et al., 2013).

The present implementation of decision-making for others in the advisor game goes beyond these prior studies in three ways. First, we do not only explore decisions on unfair but also on hyper-fair offers, which in general has received insufficient attention in the literature until now. Second, we do not only let participants decide for anonymous other persons but manipulate social distance between participant and client incrementally. Third, we explicitly instruct participants to take full responsibility for optimal decisions for all of the clients – regardless of the identities of these clients.

Experiments 1a and 1b: Decisions for self, friend, or stranger

From a hypothetical proposer endowed with 100 € participants received offers that varied between 0 to 100 € in 10 € increments. They were instructed to decide about the offers either for themselves, a close friend, or a stranger. Experiment 1a was conducted as the first study in this project to gauge the effect size of the impact of social distance between decision maker and client on acceptance rates. Then, Experiment 1b was conducted as a direct highly powered preregistered replication of Experiment 1a (see power analyses above).

Method

Data treatment, a priori power analyses, and research transparency for all experiments

Since no previous evidence on the impact of responder identity of acceptance rates in the UG is available, we conducted Experiment 1a as a pilot to gauge the basic effect size of the responder identity on acceptance rates. The crucial systematic effect that we found across all the present experiment is the higher acceptance rates of hyper-fair offers for close than distant clients, which reached an average effect size of $d_z = 0.72$ in that pilot ($d_z = 0.71$ for self vs. stranger, and $d_z = 0.73$ for friend vs. stranger). This effect requires $N = 18$ to be replicated with a power of 0.80 according to *G*Power* (Faul, Erdfelder, Lang, & Buchner, 2007), which informed the sample choices of the later experiments (the sample sizes we chose exceeded this required sample size by a wide margin). In the later meta-analysis (see below) we found an average effect size of $d_z = 0.41$ ($d_z = 0.38$ for self vs. stranger, $d_z = 0.44$ for friend vs. stranger), which requires a sample size of $N = 49$ to replicate with a power of 0.80. Thus, all the present experiments are well powered. For the experiments reported in this paper, we report all exclusion of data (if any), all manipulations, and all measures. Experiments 1b, 4, 5b, and 6a were pre-registered. The materials and data are archived under https://osf.io/g6hmu and will be made public upon publication.

Participants. $N = 68$ students of a German university ($n = 51$ female; $M_{age} = 23$, $SD = 5$) were approached on the campus and invited to take part in the 5 minutes experimental task on laptops for a candy reward. In Experiment 1b, $N = 167$ students of a German university ($n = 128$ female; $M_{age} = 24$, $SD = 7$) were approached on the campus and invited to take part in an experimental session in the laboratory on the campus for a reward of 2 €.

Materials and procedure. In a computer-directed task and as part of a larger battery of unrelated tasks, participants were instructed to engage in hypothetical negotiation scenarios, in which they could neither win nor lose any real money (the advisor game). Participants were further informed that a hypothetical anonymous person (the proposer) would propose different offers of how to split an amount of 100 € between herself and the participant. These offers could range from 0 € to 100 € in 10 € steps, that is, 0 €, 10 €, 20 € and so on to 100 €. Crucially, participants were instructed that they would either have to decide on these offers on behalf of themselves or on behalf of a given client. This client could either be a close friend of the participant or a complete stranger. Both factors, the offered amount and decision role were manipulated within-subjects, with the sequence of all 33 resulting trials re-randomized anew for each participant. In each trial both the amount of money offered by the proposer and the individual on which behalf participants would have to decide (self vs. friend vs. stranger) were presented on the screen until participants indicated whether they wanted to accept or reject the offer. Acceptance versus rejection of an offer was indicated by pressing the left and the right control key, respectively. After participants had indicated their decision, the next trial appeared. The task took 5 minutes.

Results

Experiment 1a. First, we split the 11 levels of offer into two distinct categories: unfair (including offers from 0 € to 40 €, i.e., 5 trials) and hyper-fair offers (including offers from 60 € to 100 €, i.e., 5 trials). Then, the proportion of accepted offers averaged over the five respective trials per condition was analyzed in a 3 (responder identity: self, friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA. We found a main effect of responder identity, $F(2, 66) = 10.30$, $p < .001$, $\eta_p^2 = .24$, as well as for the offered

amount, $F(1, 67) = 20.75$, $p < .001$, $\eta_p^2 = .43$. The condition means aggregated over Experiment 1a and 1b are depicted in Figure 1a.

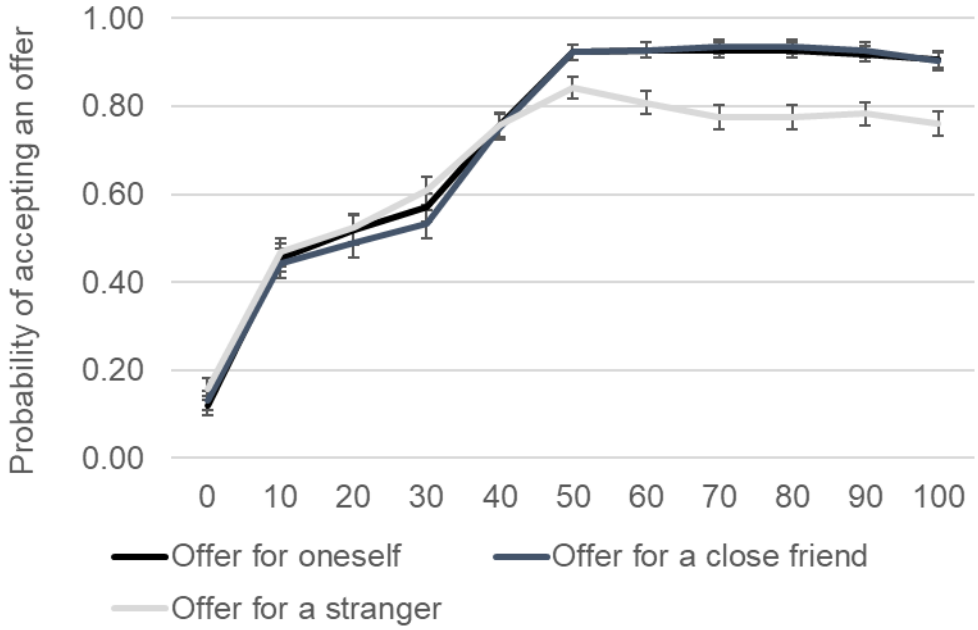


Figure 1a. Probability of accepting an offer as a function of responder identity. Collapsed results of Experiments 1a and 1b (error bars are SEMs).

In addition, an interaction between responder identity and the offered amount, $F(2, 66) = 16.93$, $p < .001$, $\eta_p^2 = .34$, surfaced. Planned comparisons revealed that within the category of unfair offers, participants accepted less offers for themselves ($M = .42$, $SE = .04$) than for a stranger ($M = .49$, $SE = .04$), $t(67) = 2.15$, $p = .036$, 95% $CI_{difference}$ [0.01, 0.14], $d_z = 0.26$, which is a sideline finding that did not reliably replicate later. There were no further reliable differences between accepting unfair offers for oneself vs. for a friend vs. for a stranger (all $ts < 1.7$). More importantly, within the category of hyper-fair offers, participants accepted more offers for themselves ($M = .87$, $SE = .03$) than for a stranger ($M = .58$, $SE = .05$), $t(67) = 5.86$, $p < .001$, 95% $CI_{difference}$ [0.19, 0.39], $d_z = 0.71$, and also more offers for a friend ($M = .84$, $SE = .04$) than

for a stranger, $t(67) = 5.99$, $p < .001$, 95% $CI_{difference}$ [0.17, 0.34], $d_z = 0.73$. No difference was found between participants' acceptance rate of hyper-fair offers for themselves vs. a friend ($t < 1.4$). The condition means aggregated over Experiment 1a and 1b are depicted in Figure 1b.

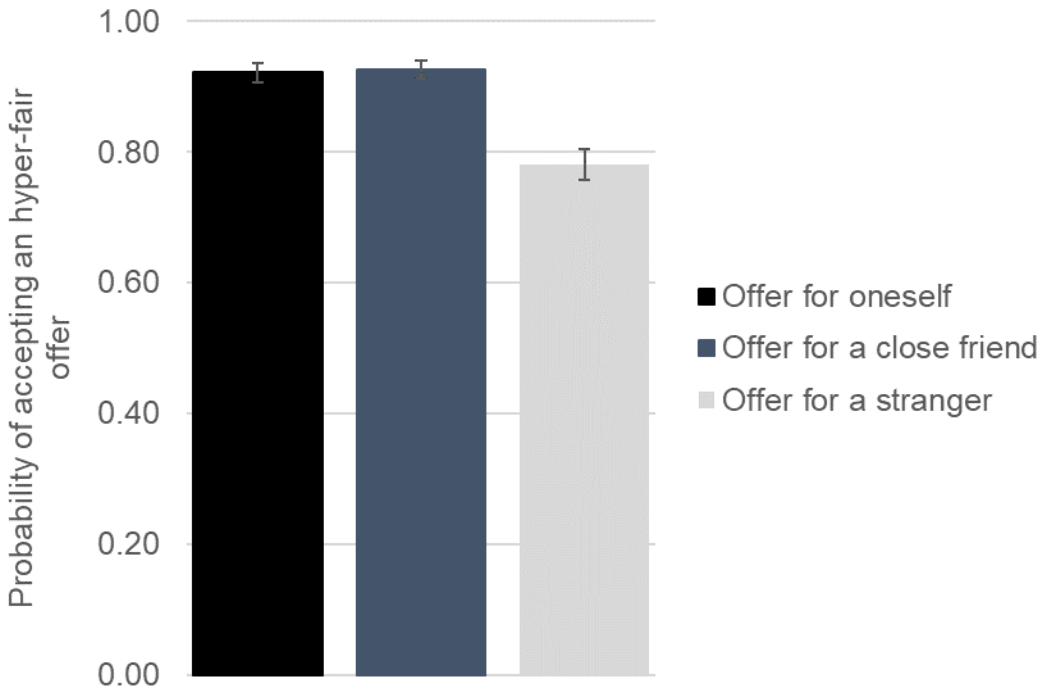


Figure 1b. Acceptance rates of hyper-fair offers as a function of responder identity. Collapsed results of Experiments 1a and 1b (error bars are SEMs).

Experiment 1b was a generously powered pre-registered replication to further examine the effect size and replicability of our effects (https://osf.io/ucrdn).

Experiment 1b. The 3 (responder identity: self, friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA found again a main effect of responder identity, $F(2, 165) = 3.92$, $p = .022$, $\eta_p^2 = .05$, as well as for the offered amount, $F(1, 166) = 235.52$, $p < .001$, $\eta_p^2 = .59$ (see Figure 1a). In addition, again, an interaction between responder identity and the offered amount, $F(2, 165) = 12.78$, $p < .001$, $\eta_p^2 = .13$, surfaced.

Planned comparisons revealed that within the category of unfair offers, there were no reliable differences between accepting offers for oneself vs. for a friend vs. for a stranger (all *ts* < 1.6).

In contrast, within the category of hyper-fair offers, participants accepted more offers for themselves (M = .94, SE = .01) than for a stranger (M = .86, SE = .02), $t(166) = 3.54$, $p = .001$, 95% $CI_{difference}$ [0.03, 0.12], $d_z = 0.27$, and also more offers for a friend (M = .96, SE = .01) than for a stranger, $t(166) = 5.32$, $p < .001$, 95% $CI_{difference}$ [0.06, 0.14], $d_z = 0.41$. There was no difference between participants' acceptance rate of hyper-fair offers for themselves and for a friend, $t < 1.6$ (see Figure 1b).

Discussion

Manipulating social distance between decision maker and client in the advisor game affected participants' acceptance rates for hyper-fair but not for unfair offers. Regardless of whether participants played the advisor game for themselves, a friend, or a stranger, the rejection rate of unfair offers is about 46 percent. The high rejection rate of unfair offers is largely in line with previous findings from numerous UG experiments (cf. Camerer, 2003). Moreover, the missing difference in rejection rate of unfair offers between self and client provides further evidence for the findings by Civai et al. (2010), suggesting that responders even reject unfair offers when their own payoff is not affected. This result is also supportive of the literature on third-party punishment (cf. Fehr & Fischbacher, 2004), since it suggests that decision makers acts as a third-parties who are motivated to punish unfair behavior directed at their clients by rejecting unfair offers, although they have no own payoffs at stake and the violation of the norm of fairness only affects their clients.

Much more striking are our findings in the domain of hyper-fair offers. Whereas participants are willing to accept those advantageous distributions for themselves and a friend by

92 percent, they do significantly less so for strangers (86 %). At first glance, this behavior seems puzzling. Moreover, it contrasts with participants' behavior observed in the domain of unfair offers: whereas participants seem to be motivated to protect their clients regardless of identity from unfair treatments by the proposer, they grant hyper-fair offers more likely to themselves and friends. On top of that, it is also worth noting that even though a 92 percent acceptance rate for hyper-fair offers is significantly higher than 86 percent, it is still significantly lower than 100 percent. Rejecting hyper-fair offers can only be explained by participants being not exclusively motivated by self-interest and maximal payoffs for their clients, but also take into account non-monetary motives – and differently so depending on client identity. Previous research has already found rejecting hyper-fair offers to be a non-negligible phenomenon, and identified social concern (i.e., injuring bilateral fairness) to be the main motive for it (cf. Hennig-Schmidt et al., 2008; Sadrieh & Osterholt, 1998). We will test in Experiments 5a/b whether this explanation holds for the present experimental setup. In the next experiments, the basic findings within hyper-fair offers should be replicated with more levels of social distance.

Experiments 2 and 3: Replications with additional layers of client identity

We replicated the set-up of Experiment 1 in two further Experiments to generalize the effect. In Experiment 2 ($N = 108$), participants were asked to decide either for themselves, a friend, a casual acquaintance, or a stranger. In Experiment 3 ($N = 90$) participants were asked to decide either for themselves, a family member, a friend, a casual acquaintance, or a stranger. In both experiments, we replicated the present basic effect: The likelihood of accepting hyper-fair offers decreased with increasing social distance, while client identity did modulate the acceptance rates for unfair offers. Due to space constraints we report these experiments in the

Supplemental Materials. After establishing and replicating the effect, in the next experiment we sought to rule out various alternative explanations.

Experiment 4: Ruling out alternative explanations

We designed a stronger test of our prediction by emphasizing several facts in the task instructions that should make it less probable that participants would deprive distant clients of advantageous distributions. Specifically, participants thus far might have misinterpreted the process of offer generation and allocation in the way that they thought that the advisor game is a zero-sum game, and that if they accept hyper-fair offers for distant clients this would lead to fewer hyper-fair offers for themselves and friends. Thus, we more explicitly informed participants of the following rules. First, the total shares allocated to either themselves, friends, acquaintances, and strangers are independent from one another. Second, rejection of offers cannot affect the generation of future offers. Third, and in order to highlight their personal responsibility, we more explicitly emphasized that participants were in charge of deciding for all clients in the best interests of these clients, irrespective of the clients' social statuses. Fourth, we emphasized that the decisions are completely anonymous and that their friends and acquaintances would not learn about their decisions, to avoid social demand effects. Fifth, we emphasized that in this hypothetical game their friends and acquaintances would not be able to share their profit with them, to discourage vested interests. We preregistered Experiment 4 through OSF (https://osf.io/pwvey).

Method

Participants. $N = 156$ students at a German university ($n = 121$ female; $M_{age} = 23$, $SD = 3$) were approached on campus and invited to take part in a 7 minutes experimental session in the laboratory on the campus for a reward of 3 € or course credit.

Materials and procedure. The method was similar to Experiment 2 except that we added a more explicit instruction about the four game features listed in the introduction of this experiment.

Results

The 4 (responder identity: self, friend, acquaintance, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA found a main effect of responder identity, $F(3, 153) = 10.40$, $p < .001$, $\eta_p^2 = .17$, as well as for the offered amount, $F(1, 155) = 193.62$, $p < .001$, $\eta_p^2 = .56$. The condition means are depicted in Figure 4a.

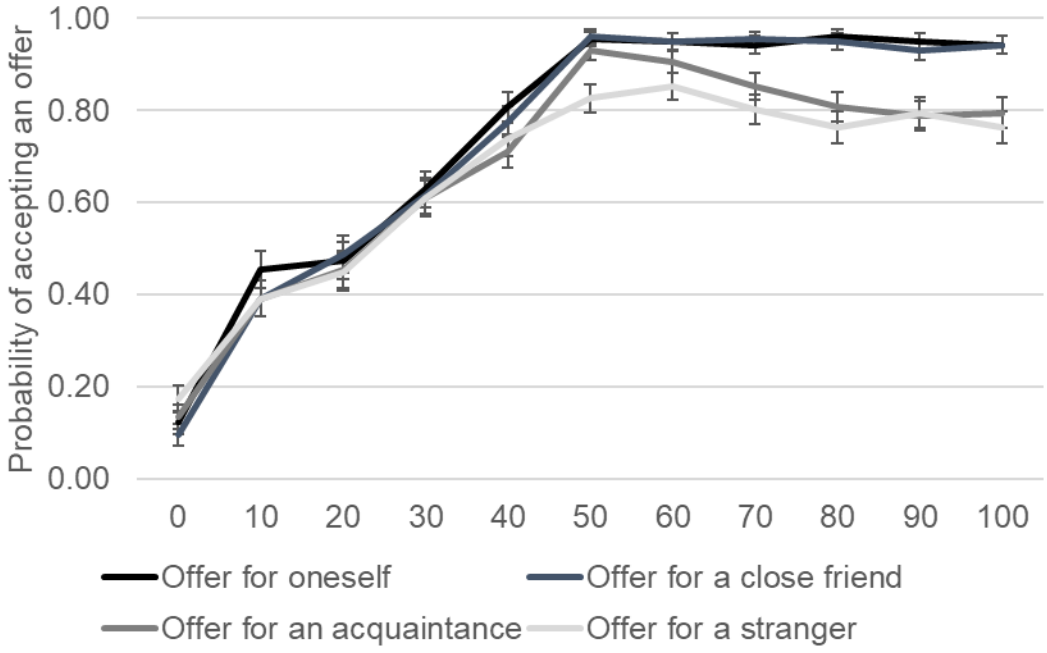


Figure 4a. Probability of accepting an offer as a function of responder identity in Experiment 4 (error bars are SEMs).

In addition, an interaction between responder identity and the offered amount, $F(3, 153) = 7.94$, $p < .001$, $\eta_p^2 = .14$, surfaced. No differences in acceptance rates for unfair offers occurred as a function of responder identity (all $ts < 1.8$).

For hyper-fair offers, participants accepted more offers for themselves ($M = .95$, $SE = .01$) than for a stranger ($M = .79$, $SE = .03$), $t(155) = 5.62$, $p < .001$, 95% $CI_{difference}$ [0.10, 0.21], $d_z = 0.45$, and for an acquaintance ($M = .83$, $SE = .03$), $t(155) = 5.11$, $p < .001$, 95% $CI_{difference}$ [0.07, 0.17], $d_z = 0.41$. Also, they accepted more offers for a friend ($M = .94$, $SE = .01$) than for a stranger, $t(155) = 5.81$, $p < .001$, 95% $CI_{difference}$ [0.10, 0.20], $d_z = 0.47$, and more offers for a friend than for an acquaintance, $t(155) = 5.58$, $p < .001$, 95% $CI_{difference}$ [0.07, 0.16], $d_z = 0.45$. There was no difference between accepting offers for oneself vs. for a friend ($t < 0.3$). The condition means are depicted in Figure 4b.

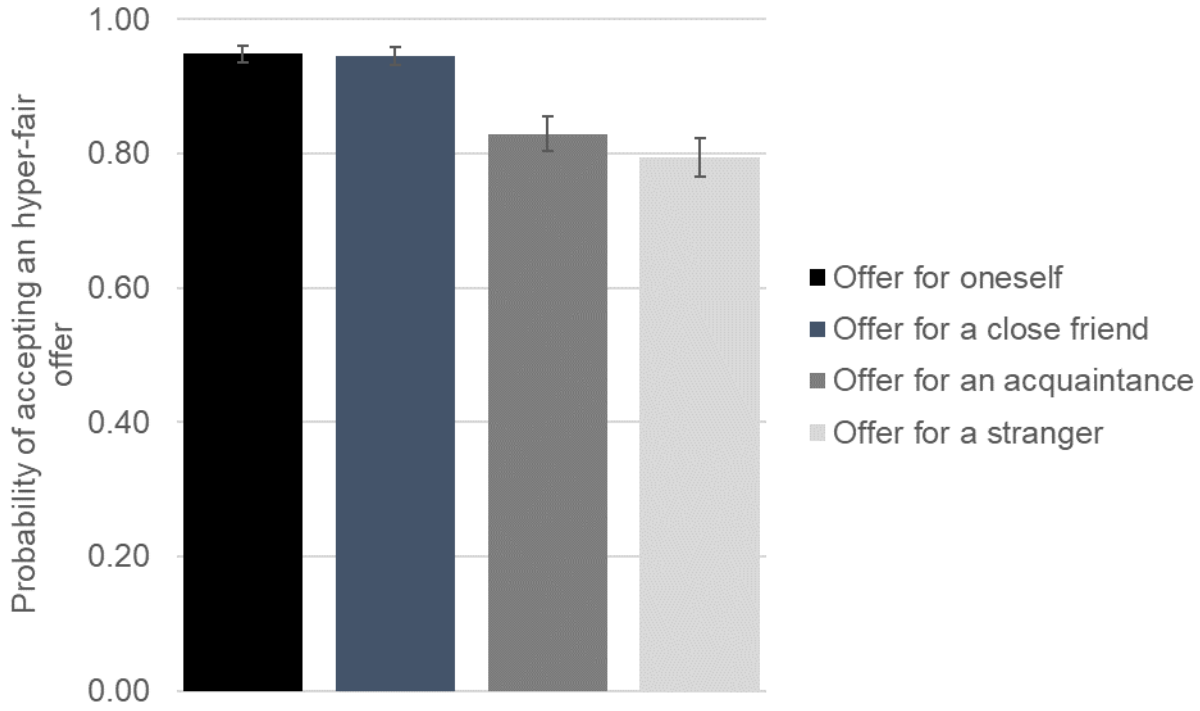


Figure 4b. Acceptance rates of hyper-fair offers as a function of responder identity in Experiment 4 (error bars are SEMs).

Discussion

Even when emphasizing that all offers were independent from each other, that participants had the responsibility to act in the best interest of each of the clients, that their close ones would not learn about their decisions and would not be able to share their profit with them, we again found the same deprivation of clients of greater social distance compared to clients being close ones or participants themselves. Furthermore, and across clients, hyper-fair offers were again accepted at only 88 percent. The next experiments should gauge the driving mechanisms of this client privileging effect.

Experiments 5a und 5b: Computer proposer

In accordance with our predictions, we found strong and reliable client privileging in Experiments 1-4, particularly for advantageous distributions. Our basic effect along with the finding that acceptance rates never rise to 100 percent, however, could be explained in line with Hennig-Schmidt et al.'s reasoning (2008), that is, by the assumption that participants' decisions are motivated by social concern for the proposer, particularly in trials with distant clients. To explore this, we replicated the set-up with the proposer not being a person, but a random computer algorithm making varying offers (cf. Van't Wout, Kahn, Sanfey, & Aleman, 2006). Experiment 5a was a first test employing an online survey finding only a marginal client privileging effect. Experiment 5b was a pre-registered laboratory replication finding a strong client privileging effect.

Method

Participants. In Experiment 5a, $N = 169$ volunteers ($n = 118$ female; $M_{age} = 35$, $SD = 14$) were recruited for an online survey by posting recruiting ads in various social media. In Experiment 5b, $N = 99$ students of a German university ($n = 77$ female; $M_{age} = 23$, $SD = 1$) were

approached on the campus and invited to take part in the experimental task on laptops for a candy reward. Note that although these sample sizes vary due to logistic and timing reasons, both experiments are still highly powered (see the meta-analysis below).

Materials and procedure. The method was similar to the previous experiments except that we informed participants that the offers in the advisor game would be randomly generated by a computer algorithm.

Results

Experiment 5a. The proportion of accepted offers was analyzed in a 3 (responder identity: self, friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA. In this analysis, there was only a significant main effect for the offered amount, $F(1, 168) = 271.28$, $p < .001$, $\eta_p^2 = .62$. As can be seen in Figure 5a the usual main effect of accepting more hyper-fair offers for oneself and for a friend than for a stranger is descriptively present but reaches only marginal significance level, $F(2, 167) = 2.60$, $p = .078$.

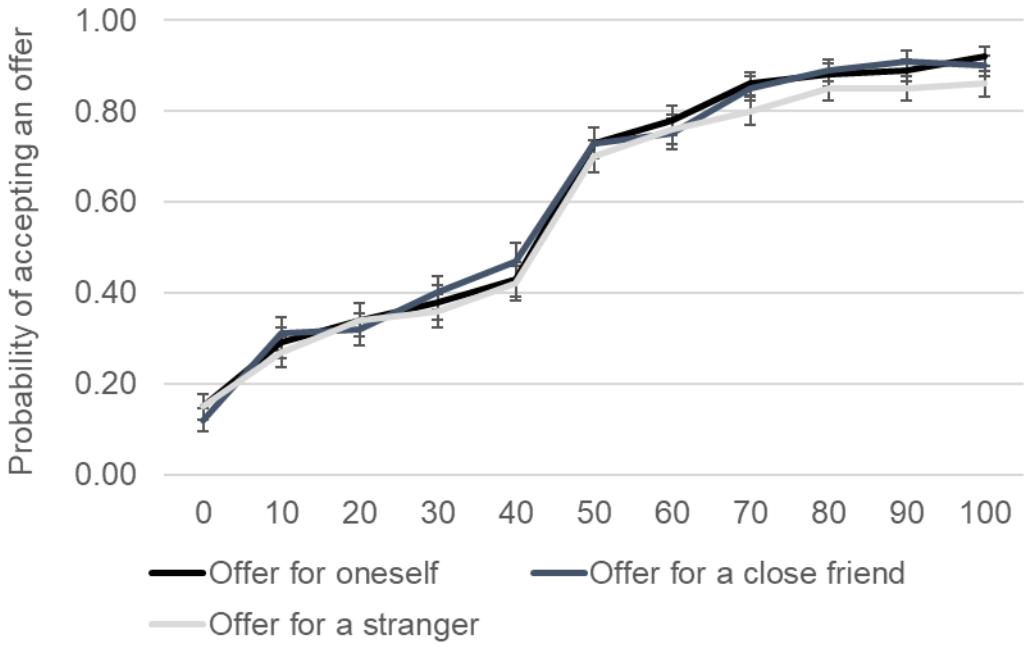


Figure 5a. Probability of accepting an offer proposed by a computer as a function of responder identity in Experiment 5a (error bars are SEMs).

Experiment 5b was a pre-registered replication to further examine the effect size and replicability of our effects (https://osf.io/w534d).

Experiment 5b. The 3 (responder identity: self, friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA found a main effect of responder identity, $F(2, 95) = 13.76$, $p < .001$, $\eta_p^2 = .23$, as well as for the offered amount, $F(1, 96) = 57.31$, $p < .001$, $\eta_p^2 = .37$ (see Figure 5b).

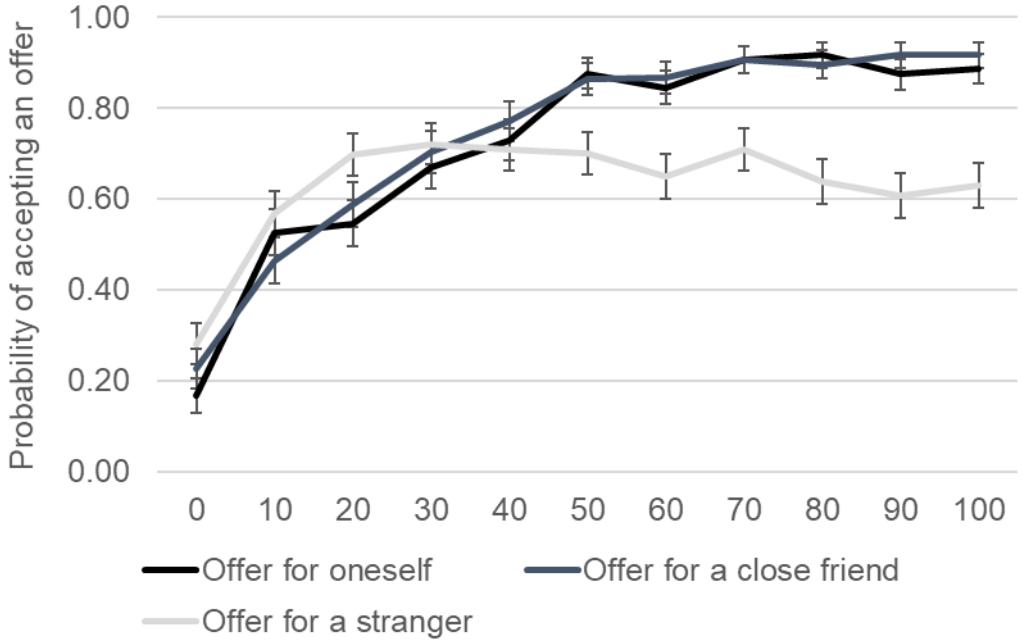


Figure 5b. Probability of accepting an offer proposed by a computer as a function of responder identity in Experiment 5b (error bars are SEMs).

Crucially, an interaction between responder identity and the offered amount, $F(2, 95) = 18.27$, $p < .001$, $\eta_p^2 = .28$, surfaced. Planned comparisons revealed that within the category of

unfair offers, participants accepted less offers for themselves (M = .53, SE = .04) than for a stranger (M = .59, SE = .03), $t(96) = 2.33$, $p = .022$, 95% $CI_{difference}$ [0.01, 0.12], $d_z = 0.24$.No further reliable differences emerged(all $ts < 1.7$).

In contrast, within the category of hyper-fair offers, participants once again accepted more offers for themselves (M = .89, SE = .02) than for a stranger (M = .65, SE = .04), $t(96) = 5.76$, $p < .001$, 95% $CI_{difference}$ [0.16, 0.32], $d_z = 0.59$, and also more offers for a friend (M = .90, SE = .02) than for a stranger, $t(96) = 6.68$, $p < .001$, 95% $CI_{difference}$ [0.18, 0.33], $d_z = 0.68$. There was no difference between participants' acceptance rate of hyper-fair offers for themselves and for a friend, $t < 0.8$ (see Figure 5c).

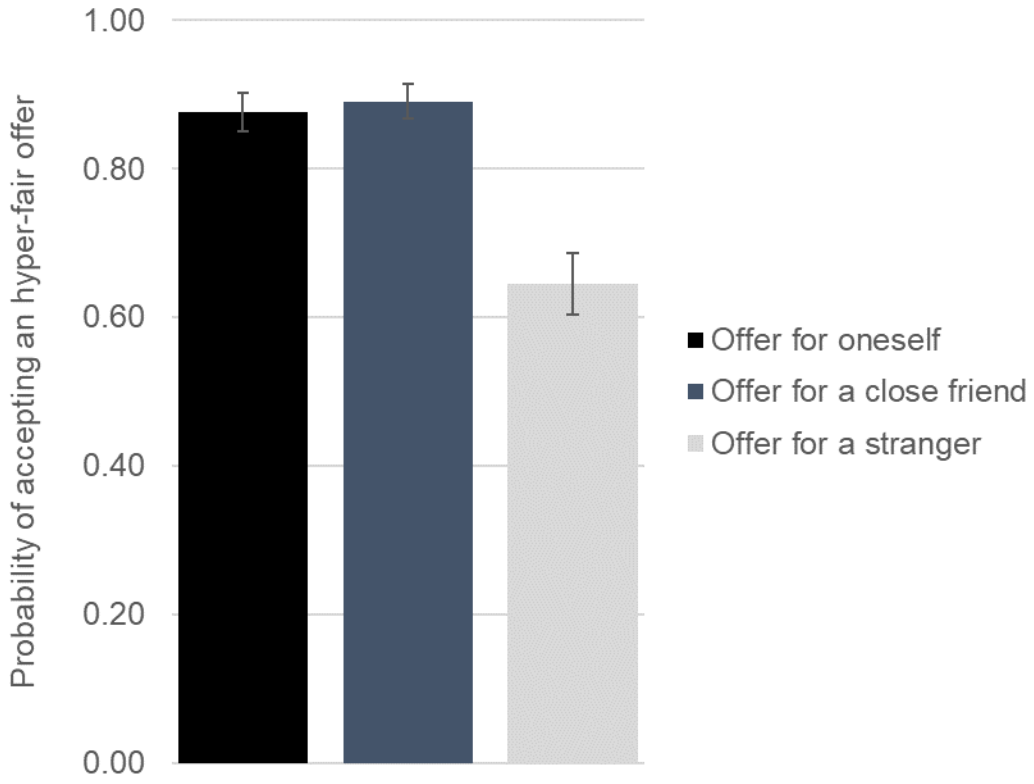


Figure 5c. Acceptance rates of hyper-fair offers as a function of responder identity in Experiment 5b (error bars are SEMs).

Discussion

Replacing a human proposer by a random offer generator still led to client privileging effects. While Experiment 5a yielded only a marginal effect, the pre-registered laboratory Experiment 5b documented a client privileging effect of an effect size similar to the earlier studies (average d_z = .64). Moreover, acceptance rates still did not increase to 100 percent but flatlined at 87 percent for self and friends and at 73 percent for strangers. This is striking since replacing the former human proposer by a random offer generation clearly rules out the earlier speculation of social concern being the main motive for rejecting hyper-fair offers (cf. Hennig-Schmidt et al., 2008; Sadrieh & Osterholt, 1998). However, Hennig-Schmidt et al. (2008) suggest further, although less common, motives for rejecting hyper-fair offers, among them emotional reasons. Since exploring the dynamics behind this (surely fascinating) sideline finding is beyond the scope of the current project, we strongly encourage future research on this matter. The remaining experiments should thus test the affective mechanisms driving client privileging, namely envy and joy for others.

Experiments 6a and 6b: The role of envy

As a first possible affective mechanism driving our client privileging effect, we gauged the causal role of envy. Envy is defined as the painful emotion that arises when someone lacks another person's superior quality, achievement, or possession (Lange & Crusius, 2015; Parrott & Smith, 1993; Smith & Kim, 2007; Van de Ven, Zeelenberg, & Pieters, 2009), with money being a strong elicitor of envy (Smith & Leach, 2004). Accordingly, participants experience strong envy in the laboratory when another ostensible participant wins more money in a game of chance than themselves (Dvash, Gilam, Ben-Ze'ev, Hendler, & Shamay-Tsoory, 2010; Shamay-Tsoory et al., 2009).

In our set-up, envy should be stronger for hyper-fair than for unfair offers, since one only little envies a client a bad deal. More importantly, however, envy should be enhanced for hyper-fair offers for strangers compared to friends, following the same pattern as the acceptance rates in the previous experiments. Crucially, envy should mediate the impact of client identity on acceptance behavior. We tested this by asking for envy ratings. Since participants can hardly report envy regarding offers directed to themselves, we only realized the conceptually relevant conditions of offers for a friend vs. a stranger. Experiment 6a was pre-registered (https://osf.io/fzynh) and only employed envy ratings, while Experiment 6b employed both envy ratings and decisions on offers.

Method

Participants. $N = 137$ students at a German university ($n = 106$ female; $M_{age} = 24$, $SD = 7$) were approached on the campus and invited to take part in the 5 minutes experimental task on laptops for a candy reward. In Experiment 6b, $N = 108$ students of a German university ($n = 84$ female; $M_{age} = 23$, $SD = 5$) were approached on the campus and invited to take part in an experimental session in the laboratory on the campus for a reward of 2 €.

Materials and procedure. The methods were closely modeled after Experiments 1-4 with two important modifications. First, in Experiment 6a, participants were simply asked to indicate how envious of a given offer they felt on a scale from 0 (not at all) to 10 (very much). In Experiment 6b, participants were instructed to indicate both, how envious of a given offer they felt, and whether they wanted to accept or reject the offer. Importantly, participants had to indicate self-reported envy of an offer first, and only afterwards decide on the offer. Second, participants were only presented with offers addressed to either their close friends or strangers as their clients. The sequence of all 22 resulting trials was re-randomized anew for each participant.

Results

Experiment 6a. The amount of self-reported envy was subjected to a 2 (responder identity: friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA. Again, we found a main effect of responder identity, $F(1, 136) = 14.53$, $p < .001$, $\eta_p^2 = .10$, as well as for the offered amount, $F(1, 136) = 185.43$, $p < .001$, $\eta_p^2 = .58$, as well as an interaction, $F(1, 136) = 13.99$, $p < .001$, $\eta_p^2 = .09$. The condition means are depicted in Figure 6a.

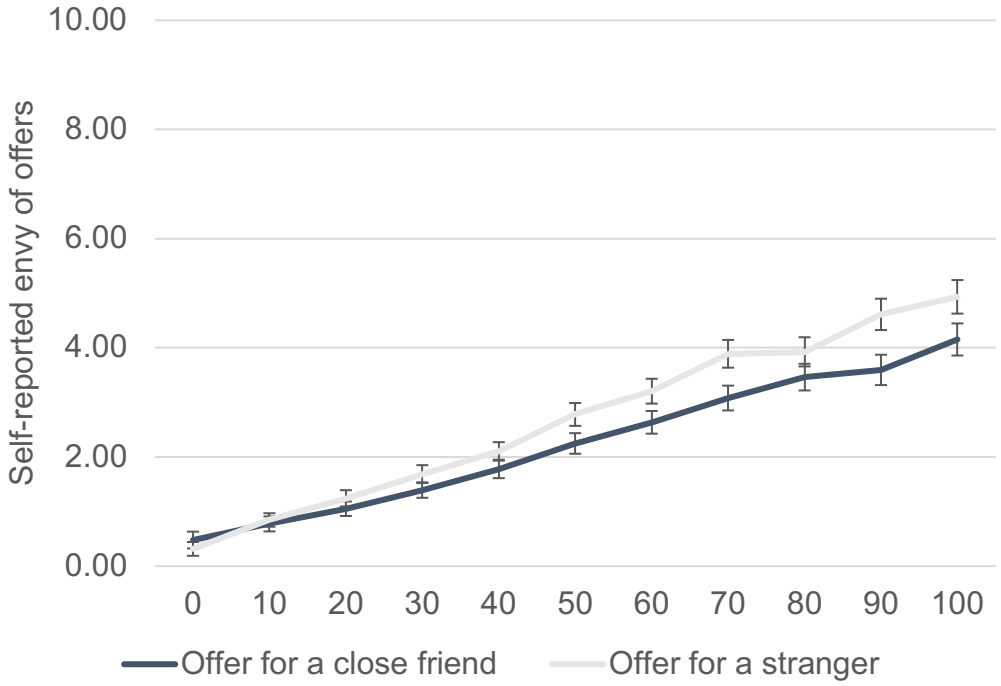


Figure 6a. Self-reported envy of an offer in Experiment 6a as a function of responder identity (error bars are SEMs).

Planned comparisons revealed that for unfair offers, participants reported marginally more envy of offers proposed to a stranger ($M = 1.24$, $SE = .11$) than to a friend, ($M = 1.09$, $SE = .11$), $t(136) = 1.96$, $p = .052$, 95% $CI_{difference}$ [0.00, 0.29], $d_z = 0.17$. For hyper-fair offers,

participants reported much more envy of offers proposed to a stranger (M = 4.12, SE = .25) than to a friend (M = 3.39, SE = .23), $t(136) = 4.01$, $p < .001$, 95% $CI_{difference}$ [0.37, 1.10], $d_z = 0.34$.

Experiment 6b. When analyzing the proportion of accepted offers in a 2 (responder identity: friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA,we again found a main effect of responder identity, $F(1, 107) = 12.49$, $p < .001$, $\eta_p^2 = .11$, as well as for the offered amount, $F(1, 107) = 165.41$, $p < .001$, $\eta_p^2 = .61$, as well as a marginally significant interaction, $F(1, 107) = 3.88$, $p = .051$, $\eta_p^2 = .04$. The condition means are depicted in Figure 6c.

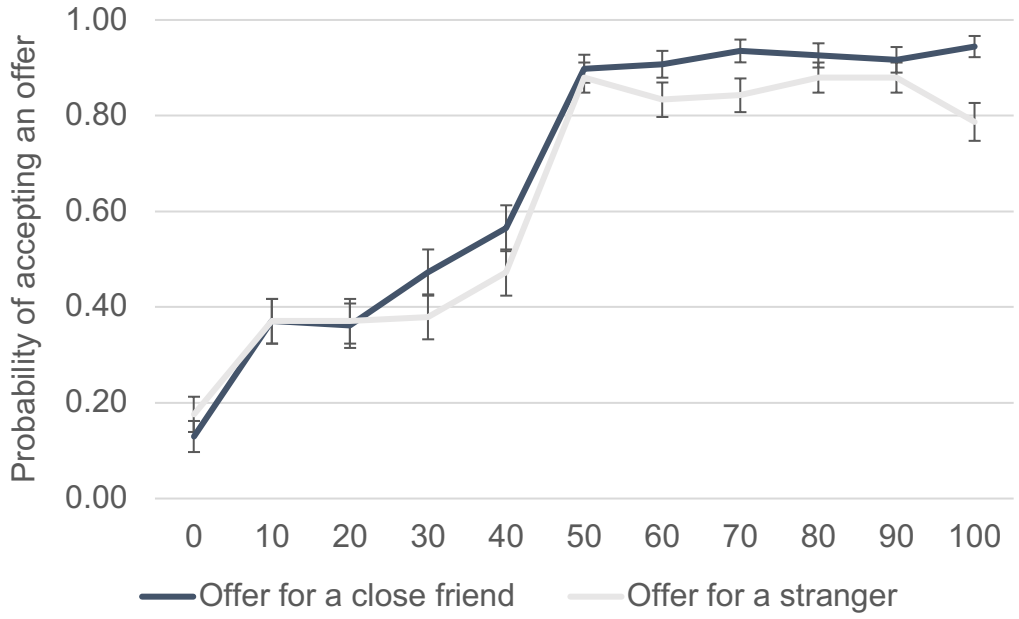


Figure 6c. Probability of accepting an offer as a function of responder identity in Experiment 6b (error bars are SEMs).

The amount of self-reported envy was subjected to a 2 (responder identity: friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA, we found the same effects as in the previous experiments: a main effect of responder identity, $F(1, 107) = 11.11$, $p = .001$, $\eta_p^2 = .11$, as well as for the offered amount, $F(1, 107) = 174.16$, $p <$

.001, η_p^2 = .62, and an interaction between responder identity and the offered amount, $F(1, 107)$ = 6.88, p = .010, η_p^2 = .06. The condition means are depicted in Figure 6d.

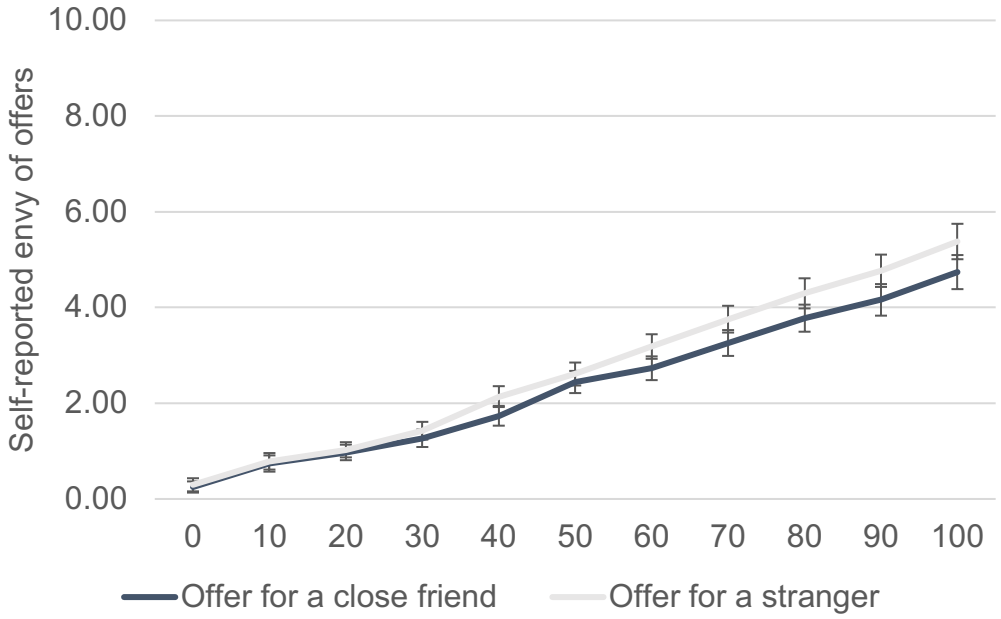


Figure 6d. Self-reported envy of an offer in Experiment 6b as a function of responder identity (error bars are SEMs).

Envy as a mediator. We hypothesized that the effect of responder identity on acceptance rates was mediated by self-reported envy, and that both the direct and indirect effect in this framework were moderated by the offered amount. To test this, a moderated mediation framework was planned (model 8 in the PROCESS macro (Hayes, 2015) for SPSS). Responder identity (coded as 0 = stranger vs. 1 = friend) served as the independent variable, acceptance rates as dependent variable, envy as the mediator, and the offered amount (codes as 0 = unfair offer vs. 1 = hyper-fair offer) was entered as a moderator of the links between responder identity and acceptance, and envy, respectively (see Figure 6e). We report regression weights and 95% CIs based on 10,000 bootstrap samples.

The model explained a significant proportion of variance, $F(4, 427) = 81.79$, $p < .001$ $R^2 = .43$. Contrary to our hypothesis, there was no evidence for moderated mediation, $b = 0.01$ [-0.02, 0.00]. Furthermore, envy did not directly, $b = 0.01$ [-0.00, 0.02], affect acceptance rates, and responder identity did not directly, $b = -0.14$ [-0.76, 0.47], affect envy. The relation between responder identity and acceptance rates was only moderated by the offered amount for hyper-fair, $b = 0.08$ [0.01, 0.17], but not for unfair offers, $b = 0.03$ [-0.05, 0.11].

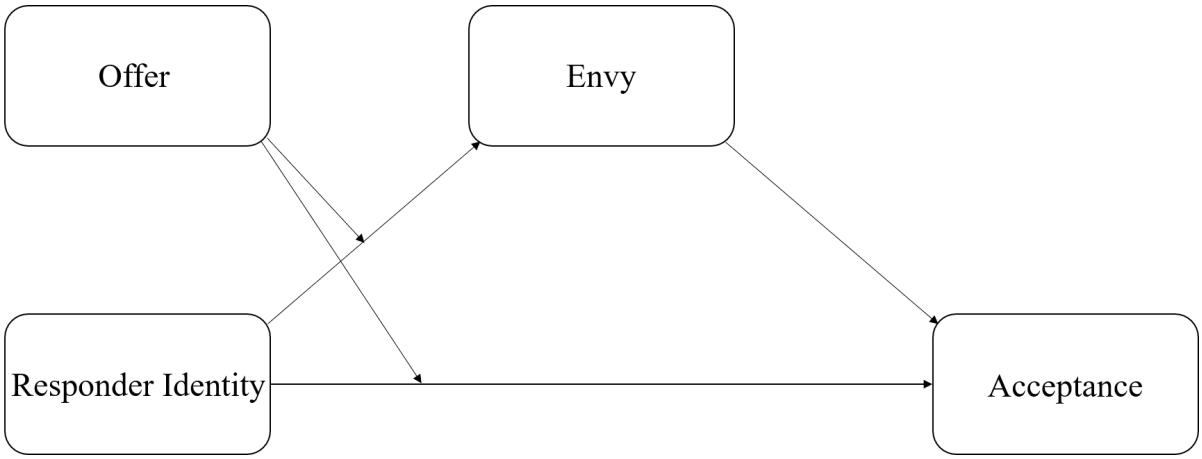


Figure 6e. Conceptual diagram of the moderated mediation model computed in Experiment 6b.

Discussion

Exploring the possible underlying mechanism envy, we did indeed find that envy elicited by the offers followed the same pattern as the acceptance rates: Envy increased with increasing amount of offer, and it did more so for strangers than friends. However, the mediation analyses showed that self-reported envy did not mediate the relation between the identity of the client and

acceptance rates. Thus, the final experiment gauged the role of another possible affective mechanism, namely joy participants experience for their clients.

Experiments 7: The role of joy

Another possible affective mechanism driving the present client privileging effect might be a positive feeling for close clients rather than a negative feeling (envy) for distant clients.[38] Thus, we explored the role of joy one feels for the client when learning about a certain offer. This positive feeling when learning about a good outcome for another person is called symhedonia by Royzman and Rozin (2006). Different words have been used by researchers to describe the joy in response to another person's fortune, as for instance sympathetic enjoyment (Heider, 1958), empathic joy (Batson et al., 1991), joy (Pietraszkiewicz & Wojciszke, 2014), vicarious joy (Kawamichi, Tanabe, Takahashi, & Sadato, 2013), or happy-for (Heider, 1958). However, these terms are not used in everyday life, but rather expressions like "I am happy for you". As there is no consensus on the technical term, we will use the term *happy-for-ness* for the sake of clarity and grammatical simplicity (Boecker & Topolinski, 2018). The preposition for is crucial to differentiate this emotion from the basic emotion happiness, which is not a social comparison-based emotion.

Happy-for-ness should follow the opposite pattern of envy. It should increase with increasing amounts offered, and it should be higher for close than distant others, which was already shown in another domain by Royzman and Rozin (2006). We tested this pattern along with its mediational role by assessing both happy-for-ness and envy. We assure high statistical power for the mediational analysis by collecting a large participant sample.

[38] We thank the handling editor and an anonymous reviewer for pointing us to this brilliant thought.

Method

Participants. $N = 401$ participants ($n = 204$ female; $M_{age} = 37$, $SD = 11$) were recruited through MTurk.

Materials and procedure. The methods were identical to those implemented in Experiment 6b except that participants were additionally asked how happy for their client they felt in regard to a given offer on a scale from 0 (not at all) to 10 (very much).

Results

The 2 (responder identity: friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA again revealed a significant main effect of responder identity, $F(1, 400) = 5.25$, $p = .023$, $\eta_p^2 = .01$, for the offered amount, $F(1, 400) = 1533.49$, $p < .001$, $\eta_p^2 = .79$, and a significant interaction, $F(1, 400) = 13.91$, $p < .001$, $\eta_p^2 = .03$. The condition means are depicted in Figure 7.

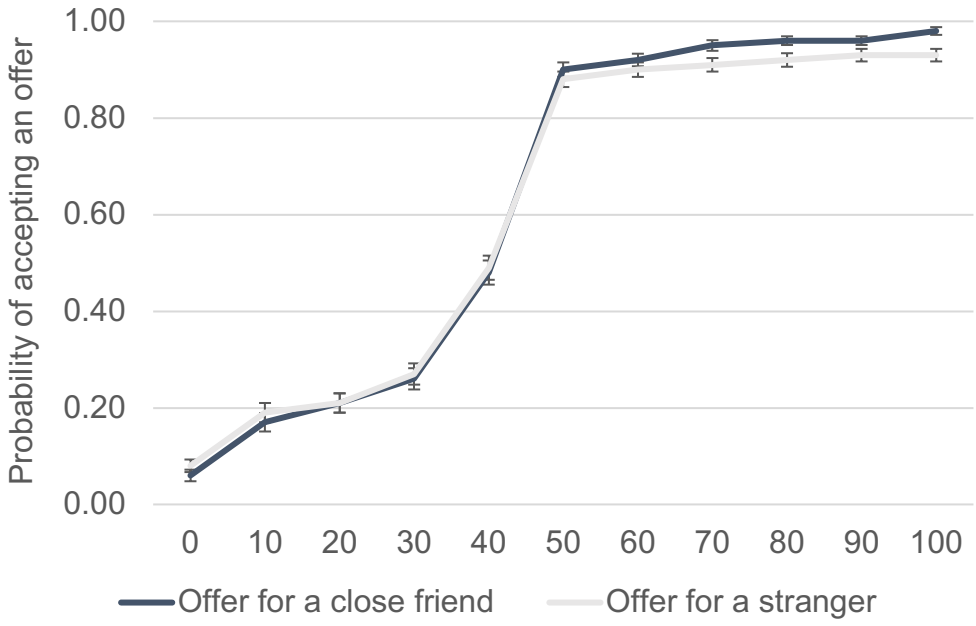


Figure 7. Probability of accepting an offer as a function of responder identity in Experiment 7 (error bars are SEMs).

Planned comparisons revealed that participants once again accepted more hyper-fair offers for a friend (M = 0.96, SE = .01) than for a stranger (M = 0.92, SE = .01), $t(400) = 4.25$, $p < .001$, 95% $CI_{difference}$ [0.02, 0.06], $d_z = 0.21$. No difference in acceptance rates as a function of responder identity occurred for unfair offers ($t < 1.1$). This time, however, the 2 (responder identity: friend, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA on self-reported envy only found a significant main effect for the offered amount, $F(1, 400) = 440.66$, $p < .001$, $\eta_p^2 = .52$, and no further effects (all $Fs < 2.5$). The same ANOVA on self-reported joy for others, on the other hand, found a significant main effect of responder identity, $F(1, 400) = 30.36$, $p < .001$, $\eta_p^2 = .07$, for the offered amount, $F(1, 400) = 1543.22$, $p < .001$, $\eta_p^2 = .79$, and a significant interaction, $F(1, 400) = 41.03$, $p < .001$, $\eta_p^2 = .09$. The condition means are depicted in Figure 8.

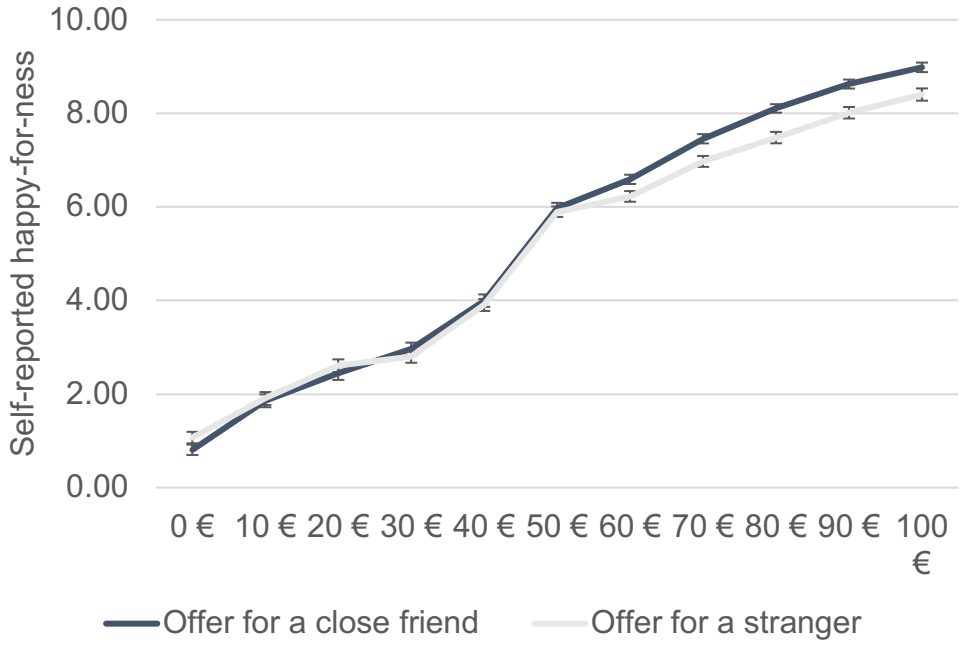


Figure 7. Self-reported happy-for-ness regarding an offer in Experiment 7 as a function of responder identity (error bars are SEMs).

Planned comparisons showed that, for hyper-fair offers, participants experienced more happy-for-ness for a friend (M = 7.95, SE = .08) than for a stranger (M = 7.42, SE = .01), $t(400) = 7.39$, $p < .001$, 95% $CI_{difference}$ [0.39, 0.67], $d_z = 0.37$. No difference in happy-for-ness as a function of responder identity occurred for unfair offers ($t < 0.9$).

Happy-for-ness for others as a mediator. Next, we tested whether the effect of responder identity on acceptance rates was mediated by self-reported happy-for-ness and/or envy, and whether direct and indirect effects in this framework were moderated by the offered amount. To this end, we computed a moderated mediation framework using the PROCESS macro for SPSS (Hayes, 2015) similar to Experiment 6b. Responder identity served as the independent variable, acceptance rates as dependent variable, happy-for-ness and envy were entered as parallel predictors, and the offered amount (unfair vs. hyper-fair offer) was entered as a moderator of the links between responder identity and acceptance, happy-for-ness, and envy, respectively (model 8, see Figure 8). We report regression weights and 95% CIs based on 10,000 bootstrap samples.

The model explained a significant proportion of variance, $F(5,1589) = 1051.25$, $p < .001$ $R^2 = .77$. There was a direct effect of responder identity on acceptance, happy-for-ness, and envy. Furthermore, happy-for-ness predicted acceptance, and there was an indirect effect of responder identity on acceptance via happy-for-ness. Envy did not predict acceptance, and there was no indirect effect via envy. Finally, only the mediation via happy-for-ness was moderated by the offered amount. Although happy-for-ness mediated the effect of responder identity on acceptance both for unfair, b = 0.38 [0.33, 0.42], and hyper-fair offers, this effect was stronger for hyper-fair offers, b = 0.42 [0.37, 0.47]. Taken together, this means that the effect of

responder identity on acceptance rates was partially mediated via happy-for-ness, while envy did not play a role.

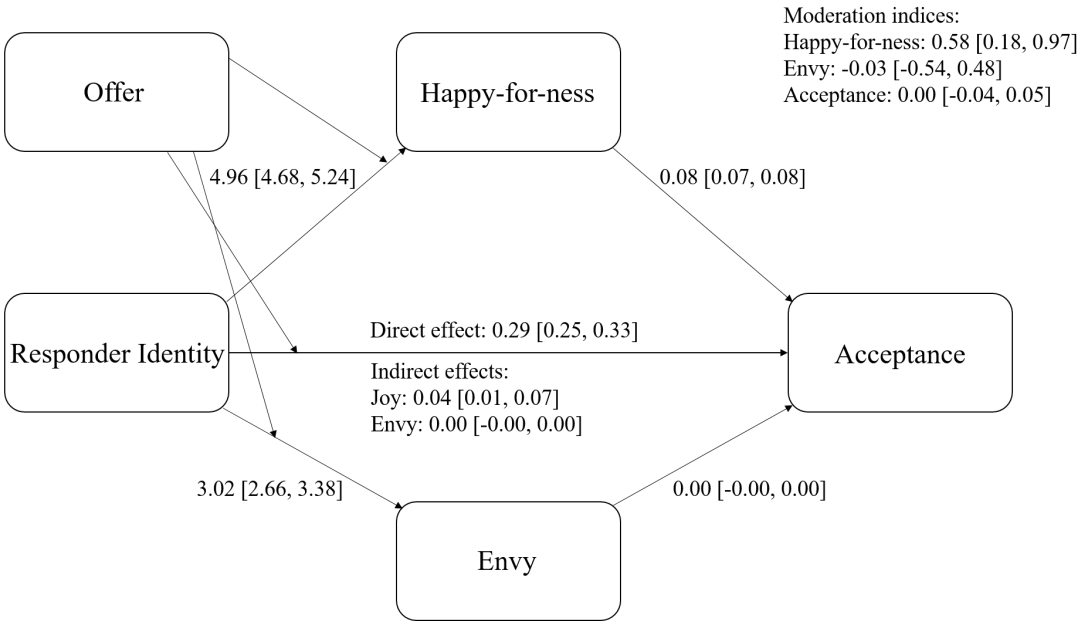


Figure 7. Moderated mediation model with self-reported happy-for-ness and envy as mediators of the relation between Responder Identity and Acceptance, moderated by Offer. Regression weights (*b*) and 95% bootstrap confidence intervals are displayed. Responder Identity was coded as 0 = stranger and 1 = friend. Offer was coded as 0 = unfair and 1 = hyper-fair.

Discussion

Further exploring the underlying affective mediator of our client privileging effect, we assessed both envy and happy-for-ness along with acceptance rates. While the impact of client identity and offer on envy found in Experiments 6a/b could not be replicated, happy-for-ness was affected in a psychologically plausible manner (cf. Royzman & Rozin, 2006): it increased with

increasing amount of offer, and it did so stronger for close than for distant others. Crucially, happy-for-ness partially explained the client privileging effect.

Meta-analysis

We conducted a meta-analysis of Experiments 1-5, where participants were only asked to accept or reject the offers without additional measures (such as envy) that might distort the effect size of the behavioral effect. This meta-analysis indicated a reliable relationship between acceptance of hyper-fair offers and responder identity. Participants consistently accepted more hyper-fair offers for themselves than for strangers ($d_z = 0.41$) and for friends than for strangers ($d_z = 0.47$).

General Discussion

Across the present experiments, we find the replicable pattern that participants accepted more hyper-fair offers for themselves and close clients than for distant clients, although participants were explicitly instructed to discount the identity of the client; and the prime importance of equity, fairness, and neutrality were strongly emphasized. Apparently, not the same norms of equality apply at all times and regardless of the target of a norm enforcement. This client privileging cannot be explained by vested interests, since participants were informed that sharing the profit with their clients after the game would be impossible. Also, the effect cannot be explained by participants' desire to maintain close relationships or a positive social reputation, since it also occurred when it was stressed that clients would never learn about participants' decisions. Moreover, participants experiencing different levels of social concern as a function of client identity, is an unlikely explanation, since client privileging also occurred when the proposer was only a non-sentient computer algorithm (Experiments 5a/b). The lacking

effect of social distance for unfair offers, on the other hand, is completely in line with previous evidence that showed that unfair offers are even rejected when individuals play the UG on behalf of a third party and their own payoffs are therefore unaffected (Civai et al., 2010; Corradi-Dell'Acqua et al., 2013).

Exploring the driving mechanism of this effect, we assessed both a negative emotion (envy) and a positive emotion (joy, or happy-for-ness). Envy was indeed affected in a similar vein as acceptance rates: it increased with increasing amounts offered, and did so more strongly for distant than for close clients. However, envy did not statistically mediate the impact of client identity on acceptance rates. Happy-for-ness, however, that is, the empathic joy one experiences regarding an offer made to the client, turned out to be an important mediator of our effect. Not only did happy-for-ness increase with increasing amounts offered, and did so more strongly for close (vs. distant) clients, it also statistically explained the impact of the offered amount and client identity on acceptance rates. Thus, the psychology behind the client privileging effect is a rather positive, compassionate one. Participants feel more joy for their client for high offers when that client is a socially close person compared to when that client is socially distant, which drives people to accept a given offer.

This has interesting conceptual implications for the psychology of social comparison-based emotions. While social psychology has identified several important moderators of social emotions (e.g., Salovey & Rodin, 1984), the social relation to the person has not received much attention. Here we show that joy for the other (and to a certain extent envy, although not replicated in Experiment 7), are moderated by social distance. Our findings regarding the social emotions envy and empathic joy involved in decision-making for others can also be seen as a test of the self-evaluation maintenance model by Tesser (1988), which argues that individuals might

tend to favor distant over close others, since close others are more relevant social comparison standards than distant others and thus may evoke more envy (Tesser, 1988). We find that strangers' fortunes evoke less joy and more envy than friends' fortunes, which is at odds with the self-evaluation maintenance model.

Our experiments employed the factors amount of offer and client identity as within-subjects factors. Thus, the question is whether client privileging would also occur in between-subjects designs. We argue, however, that in the real-world client privileging plays a role exactly in such "within-subjects" settings, when a certain advice giver or decision maker is exposed to a range of different clients varying in social distance along the daily working routine. The rare case in which an individual is put to a decision-for-others once, in a one-off setting, is thus of a lesser ecological and psychological interest. To at least take a first look into the dynamics of a between-subjects setting, we ran Experiment 8, reported in the Supplemental Materials, in which we show that presenting a friend or a stranger as a possible client evokes social closeness vs. distance and thus accompanying representations of in-group vs. out-group both when implemented in a within- and between-subjects design.

Furthermore, another striking finding in the present experiments is that, across all types of clients, acceptance rates for hyper-fair offers did not reach 100 percent but flatlined at 86 percent. The main motive for rejecting hyper-fair offers as suggested in the literature (cf. Hennig-Schmidt et al., 2008) is social concern, which we rule out by replacing the former human proposer by a random computer algorithm (Experiment 5/b). However, there are further motives that have been found to unleash this phenomenon, namely emotional, ethical, or moral reasons, and non-expectancy/ unlikeliness of hyper-fair offers. Since the present data allows only for

indirectly inferring motives from observed decisions, the phenomenon of rejecting hyper-fair offers needs to be investigated more systematically in future research.

Future research avenues

Besides its more general theoretical implications, the present client privileging effect is psychologically interesting in its own and its moderating factors and boundary conditions should be explored in future research. For instance, realizing a more fine-grained resolution of social distance, what happens if actual kinship is pitted against social distance (the brother we have not seen in years vs. an acquaintance we see regularly but do not have a strong bond with). Also, is it only social distance or any kind of psychological distance, such as spatial distance (Trope & Liberman, 2010), that affects decision-making for others? Would a participant in an experiment in New York treat clients from New York differently than clients from Los Angeles or from Paris? And how would that interact with social distance (a friend abroad versus a stranger in the same city)? Are participants aware of their bias, and if yes, do they feel guilty? If being made aware of this bias, are they able and willing to correct for it? Also, future research shall explore the processing systems involved in this bias: will client privileging even increase under cognitive load since participants can less efficiently control for envy, or will it decrease because participants do not have the mental capacity to represent the relative differences in offers and clients? These and other questions should be addressed in future research.

Supplemental Materials

Experiment 2: Decisions for self, friend, acquaintance, or stranger

Experiment 1 was replicated with an additional layer of client identity to test the replicability of our effect and to more closely gauge where at the spectrum of social distances the present bias occurs.

Method

Participants. $N = 108$ students at a German university ($n = 87$ female; $M_{age} = 23$, $SD = 4$) were approached on the campus and invited to take part in the 5 minutes experimental task on laptops for a candy reward.

Materials and procedure. The methods were similar to Experiment 1 except the addition of a further layer of client identity, namely a casual acquaintance (cf. Aron et al., 1991).

Results

The proportion of accepted offers was analyzed in a 4 (responder identity: self, friend, acquaintance, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA. Again, we found a main effect of responder identity, $F(3, 105) = 9.69$, $p < .001$, $\eta_p^2 = .22$, as well as for the offered amount, $F(1, 107) = 118.12$, $p < .001$, $\eta_p^2 = .53$. The condition means are depicted in Figure 2a.

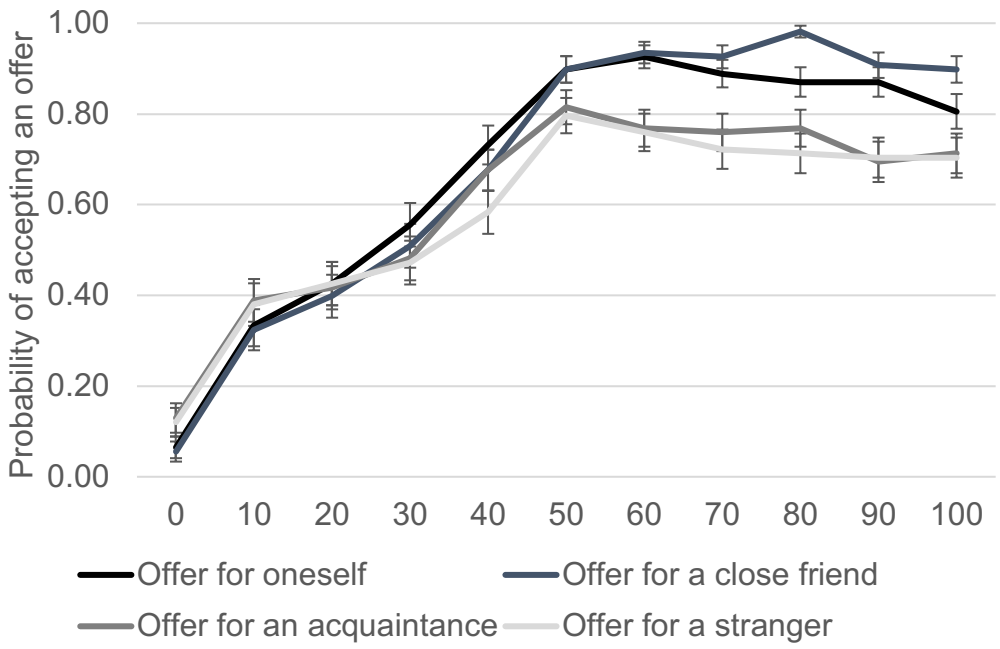


Figure 2a. Probability of accepting an offer in Experiment 2 as a function of responder identity (error bars are SEMs).

In addition, an interaction between responder identity and the offered amount, $F(3, 105) = 10.36$, $p < .001$, $\eta_p^2 = .23$, surfaced. Again, planned comparisons revealed that within the category of unfair offers, there were no reliable differences between accepting offers for oneself vs. for a friend vs. for an acquaintance vs. for a stranger (all $ts < 1.6$).

In contrast, within the category of hyper-fair offers, participants again accepted more offers for themselves ($M = .87$, $SE = .02$) than for a stranger ($M = .72$, $SE = .03$), $t(107) = 4.92$, $p < .001$, 95% $CI_{difference}$ [0.09, 0.21], $d_z = 0.47$, and also more offers for themselves than for an acquaintance ($M = .74$, $SE = .03$), $t(107) = 4.94$, $p < .001$, 95% $CI_{difference}$ [0.08, 0.18], $d_z = 0.48$. Likewise, participants accepted more offers for a friend ($M = .93$, $SE = .02$) than for a stranger, $t(107) = 6.49$, $p < .001$, 95% $CI_{difference}$ [0.15, 0.27], $d_z = 0.62$, and also more offers for a friend than for an acquaintance, $t(107) = 6.03$, $p < .001$, 95% $CI_{difference}$ [0.13, 0.25], $d_z = 0.58$.

Furthermore, participants accepted more offers for a friend than for themselves, $t(107) = 3.05$, $p = .003$, 95% $CI_{difference}$ [0.09, 0.02], $d_z = 0.29$ (see Figure 2b). Note that all these very low p-values hold for a Bonferroni correction.

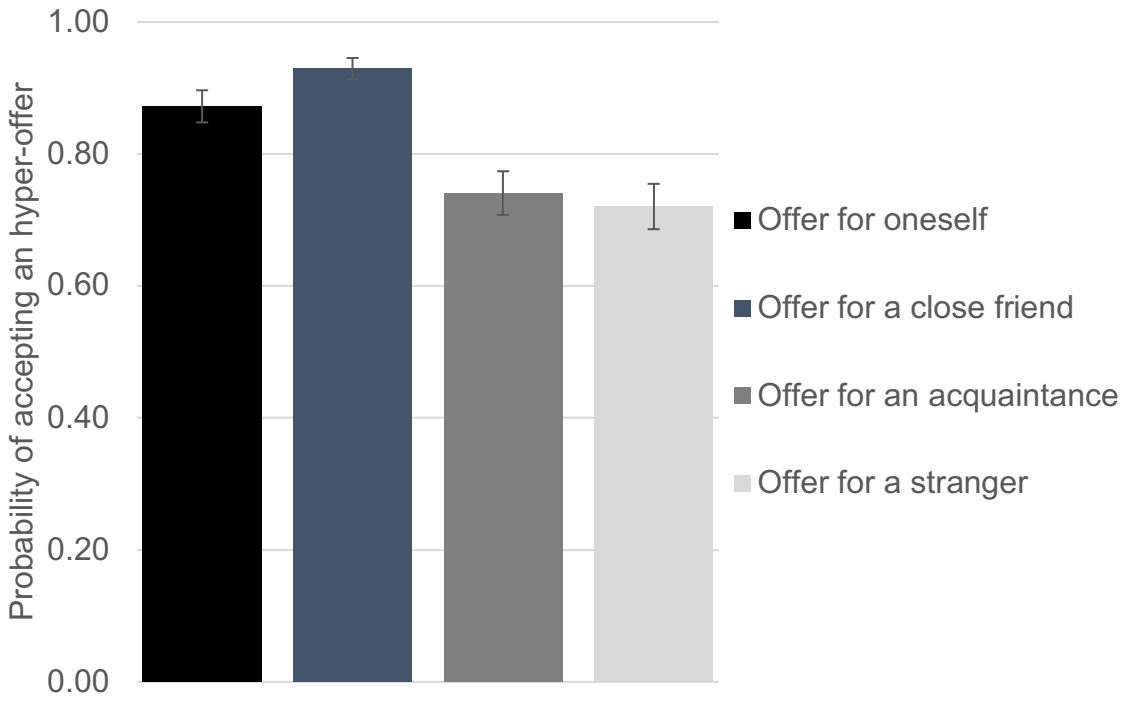


Figure 2b. Acceptance rates of hyper-fair offers in Experiment 2 as a function of responder identity (error bars are SEMs).

Discussion

Replicating Experiments 1a and 1b, participants' acceptance rates for hyper-fair offers declined with increasing social distance of the client. Strikingly, in this data set they accepted even more hyper-fair offers for a friend than for themselves. The next experiment should add yet another layer of social distance.

Experiment 3: Decisions for self, family, friend, acquaintance, or stranger

Experiment 2 was replicated with adding yet another layer of client, namely a family member.

Method

Participants. $N = 90$ students at a German university ($n = 71$ female; $M_{age} = 23$, $SD = 3$) were approached on campus and invited to take part in a 7 minutes experimental session in the laboratory on the campus for a reward of 3 € or course credit.

Materials and procedure. The method was similar to Experiment 2 except that we added a close family member as additional client role.

Results

The 5 (responder identity: self, family, friend, acquaintance, stranger; within-subjects) × 2 (offer: unfair offers, hyper-fair offers; within-subjects) ANOVA on acceptance rates found a main effect of responder identity, $F(4, 86) = 4.63$, $p = .002$, $\eta_p^2 = .18$, and a main effect of the offered amount, $F(1, 89) = 166.50$, $p < .001$, $\eta_p^2 = .65$ (see Figure 3a).

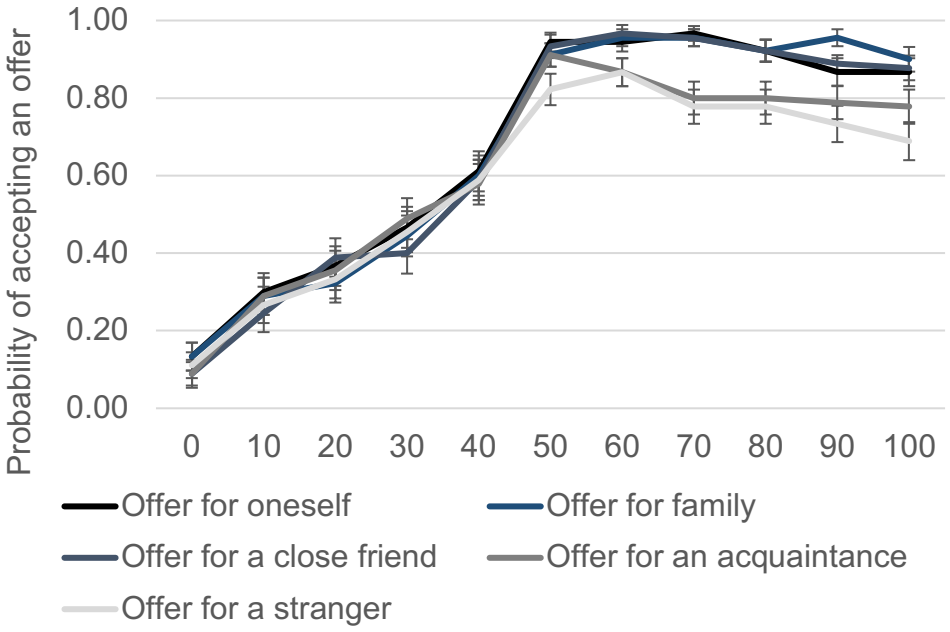


Figure 3a. Probability of accepting an offer as a function of responder identity in Experiment 3 (error bars are SEMs).

Moreover, an interaction between responder identity and the offered amount, $F(4, 86) = 4.38$, $p = .003$, $\eta_p^2 = .17$, surfaced. Once again, planned comparisons revealed that within the category of unfair offers, there were no reliable differences between accepting offers for oneself vs. for a family member vs. for a friend vs. for an acquaintance vs. for a stranger (all $ts < 1.9$).

In contrast, within the category of hyper-fair offers, participants again accepted more offers for themselves ($M = .91$, $SE = .02$) than for a stranger ($M = .77$, $SE = .04$), $t(89) = 4.53$, $p < .001$, 95% $CI_{difference}$ [0.08, 0.21], $d_z = 0.48$, and also more offers for themselves than for an acquaintance ($M = .81$, $SE = .04$), $t(89) = 3.39$, $p < .001$, 95% $CI_{difference}$ [0.04, 0.17], $d_z = 0.36$. Likewise, participants accepted more offers for a family member ($M = .94$, $SE = .02$) than for a stranger, $t(89) = 5.03$, $p < .001$, 95% $CI_{difference}$ [0.03, 0.10], $d_z = 0.53$, and an acquaintance, $t(89) = 4.19$, $p < .001$, 95% $CI_{difference}$ [0.07, 0.19], $d_z = 0.44$, and also accepted more offers for a friend ($M = .92$, $SE = .02$) than for a stranger, $t(89) = 4.80$, $p < .001$, 95% $CI_{difference}$ [0.09, 0.22], $d_z = 0.51$, and an acquaintance, $t(89) = 3.79$, $p < .001$, 95% $CI_{difference}$ [0.06, 0.18], $d_z = 0.40$. There were no differences between participants' acceptance rate of hyper-fair offers for themselves vs. a family member vs. a friend, all $ts < 1.5$, and also no differences between stranger and acquaintance, $t < 1.9$ (see Figure 3b).

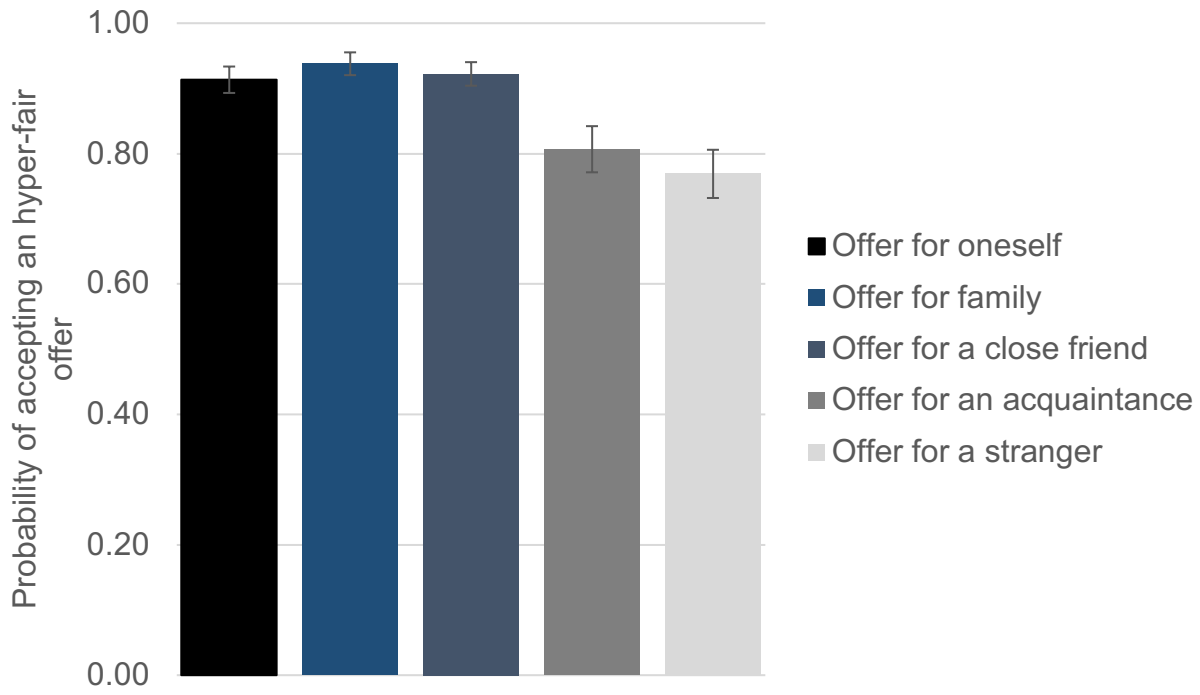


Figure 3b. Acceptance rates of offers in Experiment 3 as a function of responder identity (error bars are SEMs).

Discussion

When realizing yet another level of client identity, namely family member, we still found our effect of social distance between decision maker and client influencing the pattern of acceptance rates. It is interesting to note that the division line of the present bias is between acquaintances and close friends. Future research should might run some more fine-grained analysis of the social spectrum.

Experiment 8: Client categorization processes in a within- vs. between-subjects design

All of the present experiments employed the factors amount of offer and client identity in a within-subjects fashion. One might wonder whether the client privileging effect would also occur in a between-subjects design. Regarding this thought, it is important to note that

ecologically client privileging occurs exactly in such "within-subjects" settings, when a certain advice giver or decision maker is confronted with different types of clients across his or her daily routine. A single one-off decision for only one client is of a lesser ecological and psychological interest to us. While a demonstration of this effect in a between-subjects design would certainly be interesting, we refrained from doing so due to the high sample size required. However, we at least wanted to show that presenting a friend or stranger as a possible client evokes social closeness vs. distance and thus accompanying representations of in-group vs. out-group both when implemented in a within- and between-subjects design. This is since people automatically categorize social targets as either an in-group or an out-group member irrespective of any other information given (cf. Fiske & Neuberg, 1990). To test this assumption, we asked participants to imagine being a financial adviser and presented them with either only one specific type of client (a friend OR a stranger) or two specific types of clients (a friend AND a stranger) and asked them to report their spontaneous reactions and attitudes towards the client/s. If our assumption is true, participants' reactions and attitudes towards a client should not differ as a function of being presented with only one versus two types of clients.

Method

Participants. $N = 150$ participants ($n = 71$ female; $M_{age} = 36$, $SD = 11$) were recruited through MTurk.

Materials and procedure. Participants were instructed to adopt the role of a financial adviser, and were then presented with either only one specific type of client (friend vs. stranger; between-subjects condition), ore two specific types of clients (friend and stranger; within-subjects condition). Afterwards, participants indicated how much they perceive the given client as a member of their social group by moving an analog slider with endpoints 0 (not at all) and 10

(very much; perception rating), and how much they identify with the same social group as their given client by moving an analog slider with the same endpoints (identification rating). The task took 1 minute.

Results

In the between-subjects condition, a friend as client received higher ratings of being in-group (M = 8.59, SE = .29) than a stranger as client (M = 4.36, SE = .37), $t(99) = 9.47$, $p = .017$, 95% $CI_{difference}$ [3.34, 5.11], $d = 1.90$, and the mean identification rating was also significantly higher for a friend (M = 8.45, SE = .25) than for a stranger (M = 4.26, SE = .34), $t(99) = 10.01$, $p < .001$, 95% $CI_{difference}$ [3.36, 5.02], $d = 2.01$.

In the within-subjects condition, a friend as client also received higher ratings of being in-group (M = 8.31, SE = .31) than a stranger as client (M = 3.69, SE = .37), $t(48) = 9.58$, $p < .001$, 95% $CI_{difference}$ [3.64, 5.58], $d_z = 1.37$, and the mean identification rating was likewise significantly higher ratings for a friend (M = 8.24, SE = .34) than for a stranger (M = 3.59, SE = .38), $t(48) = 9.96$, $p < .001$, 95% $CI_{difference}$ [3.71, 5.59], $d_z = 1.42$.

Discussion

Participants' classification of a given client as a member of their own social group was decisively and exclusively influenced by the type of client they were presented with. Regardless of whether participants were presented with only one specific or two different types of clients, they significantly more identified with the same social group as their client in case of the client being a friend (vs. a stranger), and also perceived a friend significantly more as a member of their social group than a stranger. Note that the effect sizes were very large in both conditions, and actually larger in the between-subjects than in the within-subjects conditions. Apparently, and in line with previous research (cf. Fiske & Neuberg, 1990), the presence of only type of

client is sufficient in order to elicit group categorization processes; and thus it is likely that client privileging would also occur in a between-subjects design.

Chapter 4 – Rational dictators in the Dictator Game are seen as agentic and conservative, but not intelligent.

Abstract

In dictator games, dictators decide how much of a given endowment to send to receivers with no further interactions. In six experiments (total $N = 905$), we explored the relations observers infer between dictators' money amount sent and stereotype dimensions: Participants rated "unfair" but rational dictators who send little or no money as more agentic and conservative, but less communal, liberal, and intelligent than "fairer" dictators (i.e., sending half of the money). Conversely, participants expected more conservative, less communal, or less intelligent dictators to send less money compared to more liberal, more communal, or more intelligent dictators. When participants factually played the DG employing real money, only self-reported communion correlated with the money amount sent. Although participants' beliefs about relations between personality traits and DG behavior might not reflect reality, they still suggest that social actors following homo oeconomicus rational should not only fear to appear unfair, but also unintelligent.

Keywords: social perception, ABC model of stereotypes, dictator game, economic games, intelligence

Introduction

Resources in society are never distributed equally. Some people have more – be it money, time, skills, or networks – and others have less. The resulting asymmetries, especially monetary ones, enable those possessing more to execute power over those possessing less. In other words, people with resources are frequently entitled to refrain from negotiations and may directly decide what share of their resources they want to allocate to others – if at all. The iconic situation which is implied by any negotiation-free transfer of resources due to power asymmetries is the so-called *Dictator Game* (DG). Kahneman, Knetsch, and Thaler (1986) introduced the DG and Forsythe, Horowitz, Savin, and Sefton (1994) further simplified it. In the latter variant, the DG is an anonymous two-player game in which the first player, the dictator, decides on a split of an initial endowment of money. The second player, the receiver, remains passive and has no say or veto power. After the dictator made her decision, both players are paid accordingly.

Although the DG appears somewhat artificial at first glance, it reflects many situations in politics, business, economics, and finance, and practical everyday decision making, such as whether or not to tip the waiter in a restaurant one will never revisit. From a *homo oeconomicus* perspective (e.g., Luce & Raiffa, 1957), the answer to the latter question is “no”. Similarly, economically rational dictators in the DG should not send any money, because any money amount sent would be a loss to them (cf. Friedman & Savage, 1948). However, straying from predictions of traditional economic theory (von Neumann & Morgenstern, 1944), the dictators’ behavior typically deviates from rational payoff-maximization (cf. Roth, 1995; Camerer, 2003). A meta-analysis by Engel (2011) reported that 63.89% of participants in the role of dictators send money to receivers. For those who send money, the average amount represents 42.64% of

the initial endowments. This pattern seems to have external validity and real-life relevance (Franzen & Pointer, 2013).

The present research question addresses a different, hitherto overlooked feature of the DG: How does behavior in the DG influence the social perception of the dictators? This question is relevant for two reasons. First, social influences in the DG are a prominent research topic to explain dictators' behavior. For example, dictators are more giving if monitored by a third party (Hoffman et al., 1996; Cason and Mui, 1997), or even just by a pair of "watching eyes" (Haley & Fessler, 2005). Dictators may feel compelled to send money because they are reluctant to appear selfish – to both themselves and others. They may want to appear as fair dictators in the eyes of receivers, even if these receivers are anonymous and cannot punish the dictators. Dana, Cain, and Dawes (2006) took this assumption one step further and concluded that dictators are essentially motivated to take the action they think others expect them to take. This conclusion shifts the focus from the parameters of DG interactions to the observability of these interactions. Building on this prior research, we aim to address how people actually perceive dictators behaving more or less fairly (i.e., sending more or less money) and – vice versa – what kind of DG behavior others expect from people with given personality types. The social perception of dictators may offer another piece for the puzzle why dictators violate norms of economic theory.

Second, the DG is the extreme prototype for many social interactions with asymmetric power relations. The DG may be conceived as an operationalization for a wide array of every-day life decision tasks involving a combination of giving, taking, and enforcing transfers between third parties, such as mergers and acquisition, donating to charities, or as mentioned, tipping in a restaurant to which one may not return. From a social perception perspective, this provides a fascinating situation, as the "rational" behavior in the DG not to send any money is

socially undesirable and contradicts social norms of equality and equity (e.g., Leung & Bond, 1984, Reis & Gruzen, 1976). It is therefore an intriguing empirical question how social observers weigh and resolve the tension between rational but seemingly unfair behavior. In addition, any empirical insights on rationality perception and evaluation can be fruitful for applied decision problems and assist in answering the question of what observers ultimately think about perfectly rational decision-making bodies and stakeholders.

DG behavior and social perception

To date, no empirical work has examined the impact of DG behavior on social perception. We explore the bi-directional relations observers infer between dictators' behavior in the DG and their social traits. We chose to measure observers' social perception of a given dictator using the ABC model of stereotype content (Koch, Imhoff, Dotsch, Unkelbach, & Alves, 2016). The ABC model posits three fundamental dimensions of social perception: agency/socioeconomic success (A), conservative-progressive beliefs (B), and communion/warmth (C). We chose the ABC model over the Stereotype Content Model (SCM; Fiske, Cuddy, & Glick, 2006; Fiske, 2018), as the former includes the political beliefs dimension, which seems to have face value for decisions in economic games (see Koch et al., in press, for a comparison of the models). We also used the ABC dimensions of social perception instead of typical factorial systems of personality (e.g., McCrae & Costa, 1999), as the ABC dimension are inferred from spontaneous bottom-up construction (cf. Koch et al., 2016). Thus, participants should, in principle, be able to spontaneously understand and use the ABC dimensions, and meaningfully employ them to describe social targets.

Beyond the ABC dimensions, we were additionally interested in the relation observers infer between fairness level in the DG and dictators' level of intelligence, as the latter can be

construed as a proxy for rationality. Exploring this relation will provide insights in people's understanding of rational behavior as intelligent or unintelligent. In other words, do observers infer high or low intelligence from economically rational behavior? Vice versa, do observers expect rational yet "unfair" behavior from intelligent or unintelligent dictators?

Overview of the experiments

We investigated the bi-directional relations of dictators' behavior in the DG and the ABC dimensions and intelligence in six experiments. We factually conducted ten experiments in this line of research. The four experiments we do not report suffered from methodological challenges (e.g., such as numerical priming effects and potential double participation of participants). However, they are all fully consistent with the data reported here and we reported them in the online supplements. First, we examined how participants rated dictators sending "fair" (sending about 50% of the endowment), "moderately fair" (sending about 25% of the endowment), and "unfair" amounts (sending very little or no part of the endowment). Next, Experiment 2 asked participants to predict how much of their initial endowment dictators would send depending on their score on the A, B, or C dimensions and on an IQ scale (Experiment 2, and Supplementary Materials Experiments 4a and 4b). Finally, we examined factually correlations between DG behavior and self-reported personality trait profiles by asking participants to play the DG themselves, rate their own personality traits on A, B, and C, and complete a short intelligence screening.

For all experiments, we report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures employed in the experiment, following the recommendations of Simmons, Nelson, and Simonsohn (2012). The online supplements present

the stimuli presented to participants in each study, the data files, and the preregistrations (see osf.io/47m8y/).

Experiment 1a: Evaluating Dictators

In Experiment 1a, participants observed three different dictators sending what we labelled fair, moderately fair, or unfair amounts to receivers in hypothetical DGs. Then they evaluated the dictators. We defined fair offers as about half of the $10.00 endowment, moderately fair offers as 25% of the endowment, and unfair offers as 0% of the endowment. Within each fairness level, we realized three allocations with variations of 10 cents (see below). Our only (and non-directed) hypothesis was that participants' social perception of a given dictator should vary as a function of the dictator's fairness level. Experiment 1a was conducted as a pre-registered (osf.io/47m8y/), and exploratory, not confirmatory, first study in this project.

Method

Participants and Design. We had no data available to conduct *a priori* power calculations. Therefore, we aimed for 200 participants because this is the standard sample we implement in our lab when unsure about the expected effect sizes. We employed 199 (81 females, 118 males; M_{age} = 34, SD = 10) Mturk workers who received $0.60 for participating. We manipulated dictator fairness level within-participants and participants evaluated the dictators on the ABC dimensions, intelligence, and as a manipulation check, the behavior's social desirability. There were no between-participants manipulations besides fairness levels order, which we counterbalanced across participants.

Materials and procedure. Participants observed three hypothetical DGs, realizing the three fairness levels. Dictators (labeled as "proposers") were endowed with $10 and then sent either "fair" ($5.00, $4.90, $4.80), "moderately fair" ($2.60, $2.50, $2.40), or "unfair" ($0.20,

$0.10, $0.00) money amounts to receivers. The specific amount within the three fairness levels was determined randomly. After observing the first amount sent, participants evaluated the dictators' agency/ socioeconomic success (A), conservative-progressive beliefs (B), and communion (C), using the scales by Koch and colleagues (2016). Then, participants rated the dictator's intelligence and the behavior's social desirability. Following this, participants observed the next DG, and evaluated the dictator. Each participant completed this sequence three times with the described variations of the amount sent.

All scales used 100-point analog sliders. The ABC scales followed the original format by Koch and colleagues (2016). The A dimension's endpoints were "powerless, low status, dominated, poor, unconfident, unassertive" (0) and "powerful, high status, dominant, rich, confident, competitive" (100). The B dimension's endpoints were "traditional, religious, conventional, conservative" (0) and "modern, science-oriented, alternative, liberal" (100). The C dimension's endpoints were "untrustworthy, dishonest, threatening, repellent, cold, egoistic" (0) and "trustworthy, sincere, benevolent, likeable, warm, altruistic" (100). The intelligence scale's endpoints were "not intelligent" (0) and "highly intelligent" (100). The social desirability scale's endpoints were "not at all socially desirable" (0) and "very socially desirable" (100). The task took about 6 minutes.

Results

The social desirability rating, our manipulation check, confirmed the effectiveness of our fairness manipulation. Participants evaluated money amounts sent by unfair dictators as less socially desirable ($M = 22.12$, $SD = 27.34$) than amounts by moderately fair dictators ($M = 41.81$, $SD = 24.76$), and by fair dictators ($M = 80.60$, $SD = 18.63$). We analyzed these and all the following data as a function of fairness level with a general linear model with polynomial

contrasts (i.e., linear and quadratic trends). The control factor presentation order did not influence results, and we omit it from the report. This model confirmed that the social desirability ratings followed a linear trend from "fair" to "unfair", $F(1, 594) = 597.50$, $p < .001$, $\eta_p^2 = .50$, 95% CI [.45, .55].

For the ABC dimensions and intelligence, Figure 1 presents participants' averaged dictator assessments as a function of fairness level. We analyzed these data with the same linear model as the desirability ratings. The analysis showed main effects of fairness level on the A dimension, $F(2, 594) = 27.95$, $p < .001$, $\eta_p^2 = .09$, 95% CI [.05, .13], the B dimension, $F(2, 594) = 13.06$, $p < .001$, $\eta_p^2 = .04$, 95% CI [.01, .08], the C dimension, $F(2, 594) = 368.18$, $p < .001$, $\eta_p^2 = .55$, 95% CI [.50, .60], and on intelligence, $F(2, 594) = 24.81$, $p < .001$, $\eta_p^2 = .08$, 95% CI [.04, .12]. Hence, the results showed that dictators fairness level influence the assessments across all dimensions.

Within the A dimension, participants evaluated unfair dictators as more agentic ($M = 76.50$, $SD = 27.64$) than moderately fair dictators ($M = 68.35$, $SD = 18.57$), and fair dictators ($M = 60.34$, $SD = 16.91$), following a linear and trend, $F(1, 594) = 55.89$, $p < .001$, $\eta_p^2 = .09$, 95% CI [.05, .13]. The quadratic trend was not significant, $F < 1.00$.

Within the B dimension, participants evaluated unfair dictators as more conservative ($M = 45.22$, $SD = 30.87$) than moderately fair dictators ($M = 50.10$, $SD = 21.05$), and fair dictators ($M = 58.07$, $SD = 22.99$), also following a clear linear trend, $F(1, 594) = 25.62$, $p < .001$, $\eta_p^2 = .04$, 95% CI [.02, .08]. The quadratic trend was not significant, $F < 1.00$.

Within the C dimension, participants evaluated unfair dictators as less communal ($M = 20.36$, $SD = 23.06$) than moderately fair dictators ($M = 41.55$, $SD = 22.33$), and fair dictators ($M = 77.79$, $SD = 18.37$). The polynomial contrasts showed a strong linear trend, $F(1, 594) =$

719.90, $p < .001$, $\eta_p^2 = .55$, 95% CI [.50, .59]. However, the quadratic trend was also significant, $F(1, 594) = 16.46$, $p < .001$, $\eta_p^2 = .03$, 95% CI [.01, .06], due to the larger difference between unfair and moderately fair, compared to moderately fair and unfair offers.

Interestingly, for the intelligence ratings, participants evaluated unfair dictators as *less* intelligent ($M = 56.51$, $SD = 23.29$) than moderately fair dictators ($M = 59.59$, $SD = 17.52$) and fair dictators ($M = 69.46$, $SD = 15.90$). This pattern yielded again a strong linear effect, $F(1, 594) = 45.45$, $p < .001$, $\eta_p^2 = .07$, 95% CI [.04, .11], although the quadratic contrast was significant as well, $F(1, 594) = 4.17$, $p = .042$, $\eta_p^2 = .01$, 95% CI [.00, .03].

Table 1 presents correlations among participants' assessments of dictators' agency, beliefs, communion, and intelligence. As the Table suggests, agency correlates positive with intelligence but negative with communion, whereas communion correlates positive with intelligence.

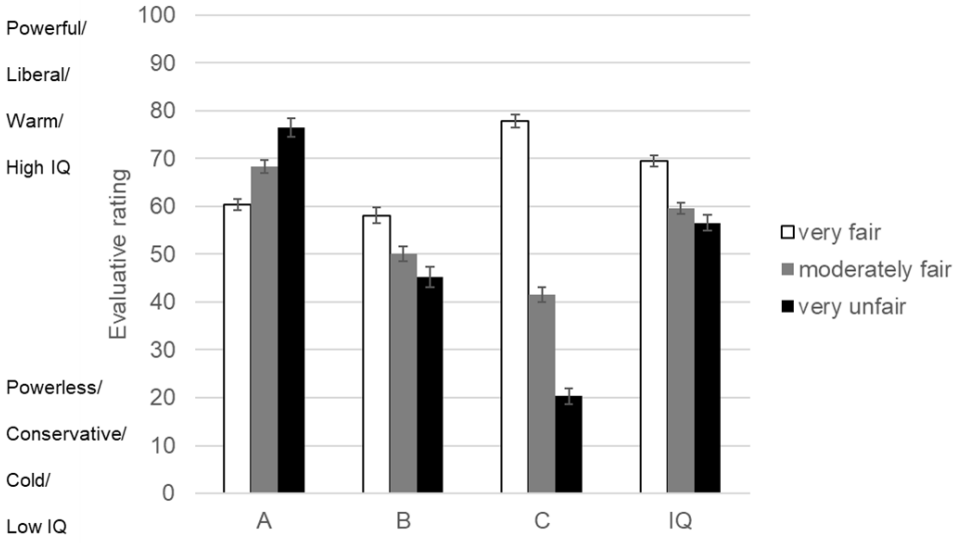


Figure 1. Participant assessments of dictators in Experiment 1a as a function of dictators' fairness levels. Higher numbers indicate higher rated agency (A), higher rated liberal beliefs (B),

higher rated communion (C), and higher rated intelligence (IQ). The text provides the precise scale labeling. Error bars represent standard errors of the means.

Table 1. Correlations among higher rated agency (A), higher rated liberal beliefs (B), higher rated communion (C), and higher rated intelligence (IQ).

	A	B	C	IQ
A	--	.07	-.21*	.17*
B		--	.31*	.32*
C			--	.43*
IQ				--

Note: * $p < .05$, ** $p < .01$, $N = 199$

Discussion

Manipulating dictators' fairness level in the DG influenced participants' social perception of dictators. The social desirability ratings confirmed the classification of the money amount sent from fair to unfair and that that participants correctly understood the DG behavior. Based on the amount sent, participants rated fair dictators as less agentic, and less conservative, but more communal, more liberal, and more intelligent, compared to unfair dictators. Participants rated moderately fair dictators in general in the middle between fair and unfair dictators. In other words, being rational in a DG game-like situation may lead perceivers to see the actor as agentic, but less intelligent and obviously, less communal. In addition, rational dictators are seen as rather conservative.

The results regarding communion are in line with research suggesting that other-profitability, that is, in the present paradigm, sending fair money amounts, is an inherent quality of communal traits (Abele & Wojciszke, 2007). Thus, dictators' behavior directly signals whether they are low or high in communion.

The observed correlations also suggest that communion might serve as a salient standard from which the remaining judgments are inferred. Following this argument, the correlation between the positive attributes of communion and high intelligence might be a halo effect (Thorndike, 1920; Cooper, 1981), in particular inferences from one positive trait to other positive traits (Gräf & Unkelbach, 2016, 2018). However, being agentic is also a positive attribute, but correlated negatively with communion, which makes a simple halo effect interpretation unlikely. Nevertheless, we will address the possibility that the observed relations manifest due to a general underlying liking or disliking of the dictators in Experiment 2.

Before we move to Experiment 2, we aimed to address another potential concern: Both the term "proposer" and the action of "sending money to a receiver" imply actions and are thereby agentic to begin with. Participants' ratings on the A dimension are thereby conceivably confounded with the framing of Experiment 1a. We addressed this concern by changing the semantic framework of the DG in Experiment 1b.

Experiment 1b: Evaluating dictators in a "keeping" frame

Experiment 1b replicated Experiment 1a with two changes regarding the semantic framework employed to describe the DG. We replaced the "proposer and receiver" labels with "Player 1 and Player 2" and changed the former "sending frame" to a "keeping frame" (cf. Dreber, Ellingsen, Johannesson, & Rand, 2013).

Method

Participants and Design. We reduced the sample size by approximately 50% based on the observed effect sizes in Experiment 1a. Consequently, we recruited only 104 (49 females, 55 males; M_{age} = 37, SD = 11) Mturk workers who received \$0.60 for participating. The design replicated Experiment 1a.

Materials and procedure. We kept the materials and procedures highly similar to Experiment 1a, but exchanged the "proposer and receiver" labels with "Player 1 and Player 2". We further informed participants about how much of the initial endowment a given dictator would "*keep"* instead of "*send"*. Moreover, we omitted the social desirability rating in Experiment 1b, as it served only as a manipulation check in Experiment 1a.

Results

Figure 2 presents participants' dictator assessments for the three fairness levels. As the Figure suggests, participants' ratings on the ABC dimensions and intelligence again differed systematically as a function of fairness level. To analyze these data, we followed the same statistical procedure as in Experiment 1a.

The analysis again showed main effects of fairness level on the A dimension, $F(2, 309) = 37.69$, $p < .001$, $\eta_p^2 = .20$, 95% CI [.12, .27], the C dimension, $F(2, 309) = 176.13$, $p < .001$, $\eta_p^2 = .53$, 95% CI [.46, .59], and on intelligence, $F(2, 309) = 4.93$, $p < .008$, $\eta_p^2 = .03$, 95% CI [.00, .07]. The influence on the B dimension was not significant, though, $F(2, 309) = 3.00$, $p = .051$, $\eta_p^2 = .02$, 95% CI [.00, .06]. Hence, the results replicated that dictators' fairness level influenced the A, C, and intelligence assessments.

Within the A dimension, participants again evaluated unfair dictators as more agentic ($M = 83.04$, $SD = 23.81$) than moderately fair dictators ($M = 72.01$, $SD = 20.34$), and fair dictators ($M = 58.39$, $SD = 16.76$), again following a linear and trend, $F(1, 309) = 37.69$, $p < .001$, $\eta_p^2 = .11$, 95% CI [.05, .18]. The quadratic trend was not significant, $F < 0.29$.

Within the B dimension, participants descriptively evaluated fair dictators as less conservative ($M = 56.43$, $SD = 22.82$) than moderately fair ($M = 47.84$, $SD = 24.22$), and unfair

dictators (M = 48.99, SD = 33.97). However, this time, both the linear and the quadratic trend were not significant: $F < 3.01$.

Within the C dimension, participants again evaluated unfair dictators as less communal (M = 18.91, SD = 23.70) than moderately fair dictators (M = 42.88, SD = 23.77), and fair dictators (M = 76.10, SD = 18.27). The polynomial contrasts showed a strong linear trend, $F(1, 309) = 349.20$, $p < .001$, $\eta_p^2 = .53$, 95% CI [.46, .59]. The quadratic trend was not significant, $F < 3.06$.

Interestingly, for the intelligence ratings, participants again evaluated unfair dictators as *less* intelligent (M = 58.26, SD = 25.31) than moderately fair dictators (M = 61.50, SD = 19.78), and fair dictators (M = 67.47, SD = 18.74). This pattern yielded again a linear effect, $F(1, 309) = 9.57$, $p < .002$, $\eta_p^2 = .03$, 95% CI [.00, .08]. The quadratic trend was not significant, $F < 0.29$.

Table 2 presents correlations among participants' assessments of dictators' agency, beliefs, communion, and intelligence. As the Table suggests, agency correlates positive with intelligence but negative with communion, whereas communion correlates positive with intelligence.

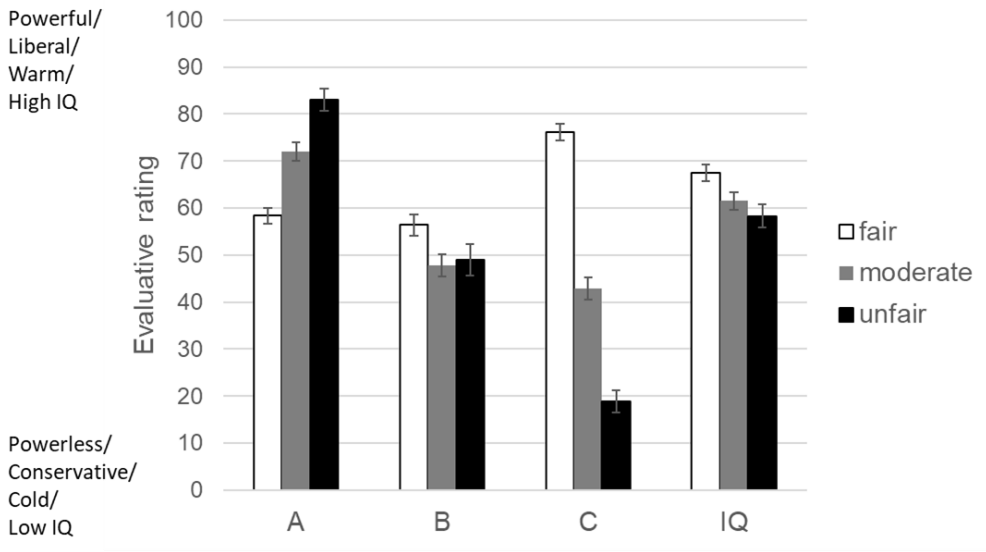


Figure 2. Participant assessments of dictators in Experiment 1b as a function of dictators' fairness levels. Higher numbers indicate higher rated agency (A), higher rated liberal beliefs (B); and higher rated communion (C). The text provides the precise scale labeling. Error bars represent standard errors of the means.

Table 2. Correlations among higher rated agency (A), higher rated liberal beliefs (B), higher rated communion (C), and higher rated intelligence (IQ).

	A	**B**	**C**	**IQ**
A	--	.17*	-.33*	.24*
B		--	.24*	.29*
C			--	.34*
IQ				--

Note: * $p < .05$, ** $p < .01$, $N = 104$

Discussion

We by and large replicated Experiment 1a with a "keeping" instead of a "sending" frame and with more neutral labels for the dictator and the receiver. Participants again rated fair

dictators as less agentic, but more communal, more liberal, and more intelligent than unfair dictators. However, different from Experiment 1, the linear effect on the B dimension was not significant. Focusing on the clearly significant effects, we fully replicated that participants again perceived rational actors in a DG game as agentic, but less intelligent and obviously, less communal. Importantly, the findings for the A dimension were unaffected by the semantic changes. However, the correlations suggest that if one ignores the A dimension, the pattern might follow from a general communion judgment. Participants might have rated likeable dictators high in communion also as intelligent. Again, the negative correlation with the also positively connotated A dimension does not follow from such a reasoning.

Nevertheless, we addressed this concern by testing whether these relations are bi-directional; that is, we presented participants with dictators' personality traits on the A, B, or C dimension, or on an intelligence scale, and asked them to predict the dictators' behavior based on their relative position on these four dimensions. As the dependent variables from Experiments 1a and 1b are now under experimental control, this approach solves the problem of the systematic co-variations among the dependent variables.

Experiment 2: Predicting Dictators' behavior

In Experiment 2, participants learned about dictators' locations on the A, B, or C dimensions, or about their level of intelligence. We then asked them to predict the dictators' behavior (i.e., the money amount sent) based on this information. In the Supplementary Materials, we report two additional experiments (Experiment 4a and Experiment 4b) applying a very similar procedure. We conducted both experiments before Experiment 2. The data from these two experiments fully converges with the data presented here. However, we had one technical and one design problem in these experiments and therefore only report them in the

Appendix for completeness. The technical problem was that due to multiple participations our samples of observations were not independent. The design problem was that Experiment 4a und 4b presented the same scales we used in Experiments 1a and 1b, leaving open alternative explanations of in terms of polarity correspondence (Proctor & Cho, 2006) or numerical priming (Wilson, Houston, Etling, & Brekke, 1996). The present Experiment 2 avoids these potential alternatives. For a more detailed discussion, see the Supplementary Materials.

Method

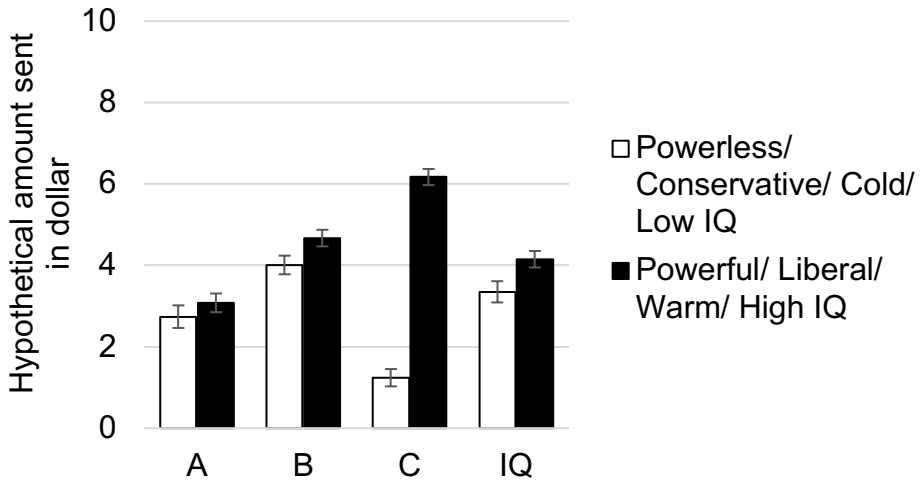
Participants and design. We again employed 100 (34 females, 66 males; M_{age} = 36, *SD* = 9) Mturk workers who received $0.30 for participating. We manipulated dictators' locations on the A, B, and C dimensions, and dictators' level of intelligence within-participants. There were no between-participants manipulations.

Materials and procedure. Participants evaluated eight dictators. On each evaluation trial, we instructed participants to think of a dictator – labeled as "proposer" – scoring high or low on either the A, B, or C dimension, or on intelligence, resulting in the eight trials. For example, the description of a dictator high on A would read: "Please think of a proposer having high agency/ socio-economic success, that is, a very powerful, high status, dominant, rich, confident, and competitive" and to imagine the dictator as vividly as possible. After imagining what this kind of dictator would be like, participants indicated how much of an initial $10 endowment the dictator would be willing to send to the receiver on a 100-point analog slider scale with endpoints "$0" and "$10". The survey software re-randomized the sequence of all 8 resulting rating trials anew for each participant. The task took about 3 minutes.

Results

Figure 3 shows the mean predicted amount sent as for the four evaluative dimensions for dictators being high or low on these dimensions. Surprisingly, we found no difference in predicted money amount sent for dictators being high (M = 3.08, SD = 2.77) or low (M = 2.74, SD = 2.29) on the agency dimension, $t < 1.1$. Within the political beliefs dimension, participants predicted more conservative dictators to send less money (M = 4.01, SD = 2.29) compared to more liberal dictators (M = 4.67, SD = 2.04), $t(99) = 2.15$, $p = .034$, $d_z = 0.22$, 95% CI [.02, .41]. Participants also predicted more communal dictators to send more money (M = 6.17, SD = 1.98) compared to less communal dictators (M = 1.24, SD = 2.12), $t(99) = 15.96$, $p < .001$, $d_z = 1.60$, 95% CI [1.30, 1.89]. Participants also predicted more intelligent dictators to send more money (M = 4.15, SD = 2.03) compared to less intelligent dictators (M = 3.35, SD = 2.61), $t(99) = 2.41$, $p = .018$, $d_z = 0.24$, 95% CI [.04, .44].

Figure 3. Money amount sent as a function of evaluative dimension for dictators scoring high or low on these dimensions. Error bars represent standard errors of the means.



Discussion

Participants predicted that more liberal, or more communal, or more intelligent dictators would send more money compared to more conservative, or less communal, or less intelligent dictators, respectively. However, there was no difference in predicted amount of money sent as a function of the A dimension.

Importantly, however, dictators' ratings on the beliefs dimension, on communion, and their level of intelligence did provide meaningful reference points for predicting dictators' behavior. Thus, we deem the links between these personality traits and dictators' behavior in the DG to be bi-directional. Especially the influence of intelligence level was striking. Apparently, learning about dictators' level of intelligence is sufficient for predicting their behavior – isolated from any other information regarding her personality. This is rather unexpected because previous research (De Bruin & Van Lange, 1999) suggests that information about the intelligence of another person does not affect expectations about this persons' sending behavior in a social dilemma task. According to these authors, this is due to intelligence information alone not allowing for reliable inferences regarding the rationality (individual vs. collective) a person endorses (De Bruin & Van Lange, 1999). In the present paradigm, intelligence information apparently does serve as a sufficient indicator for predicting sending behavior in the DG. In addition, the present approach rules out a halo effect explanation of the participants assumed relation between intelligence and behavior in an economic game.

The non-replication of the perceived relation between agency and amount sent deserves some consideration. Participants predicted that both dictators scoring high on agency, that is high status dictators, and dictators scoring low on agency, that is low status dictators, would send comparatively low amounts of money (cf. Figure 3). The result that high agency dictators would

send low amounts of money is in line with our previous results and with the findings of upper-class individuals being less generous and altruistic in the DG (Piff et al., 2010) and also generally fostering more positive beliefs about greed (Piff et al., 2012). However, according to these findings, lower-class individuals, that is, in the present setup low status dictators, should send relatively large portions of their endowment to receivers (Piff et al., 2010, p. 774; see also Andreoni, 2001). We did not find this effect here. One reason for this lacking effect might be that participants learned that low agency subsumes, among others, poverty. Therefore, it may seem implausible to participants to predict that poor dictators would be willing to increase receivers' payoff if it is costly to them. Furthermore, it may seem also implausible to participants to imagine a dictator being low in agency in the first place, since the labels "proposer" and "low agency" may appear mutually exclusive. But regardless of the reasons, we must conclude that the A dimension, in the present experimental setup, did not serve as a proper reference point for discretely predicting dictators' behavior.

Experiment 2 thus refines the conclusions drawn from Experiments 1a and 1b and bolsters the assumption of a bi-directional between political orientation, communion, and level of intelligence, on the one hand, and DG behavior, on the other hand. The role of high and low agency remains ambiguous, though.

The last set of experiments tested a possible origin of people's assumptions about the relations between dimensions of social perception and DG behavior, namely if there might be factual correlations in the real world between personality traits and DG behavior. Thus, participants played the DG themselves, rated their own personality traits, and performed an intelligence test.

Studies 3a, 3b, and 3c: Self-perception and behavior in Dictator Games

The study set examined factually correlations between behavior and personality traits as a potential source for the observed inferences. Studies 3a, 3b, and 3c addressed this question by assessing factual behaviors in the DG and self-reports on the A, B, and C dimensions, as well as short intelligence tests.

For determining the effect sizes to be expected, we followed the recommendations by Schönbrodt and Perugini (2013) and assumed effect sizes smaller than .20. We further assumed a conservative confidence level of 95% and regarded only effect sizes smaller than .10 as acceptable fluctuations. If applying these values on the "Critical point of stability" table provided by Schönbrodt and Perugini (2013) the required sample size is around $N = 446$. Thus, we collapsed the from Studies 3a, 3b, and 3c leading to a total sample size of 502 participants. Moreover, we averaged the ratings for the A, B, and C dimensions across sub-scales (see below). Importantly, the results across Studies 3a, 3b, and 3c are all consistent and there is no difference between reporting them separately versus combined.

Method

Participants and design. In Study 3a, we employed 100 (46 females, 54 males; M_{age} = 40, SD = 11) Mturk workers who received $1.20 for participating. In Experiment 3b, we employed 202 (80 females, 122 males; M_{age} = 38, SD = 11), and in Experiment 3c, we employed 200 (104 females, 96 males; M_{age} = 41, SD = 10) Mturk workers who received $0.50 for participating. The study relied on a correlational design without experimental manipulations.

Materials and procedure. Similar to Experiments 1a and 1b, participants provided self-ratings on the A, B, and C dimension on 100-point analog slider scale. However, this time, we used only one adjective and its opposite as endpoints for each scale, which leads to a total of six sub-scales for the A (powerless vs. powerful, low status vs. high status, dominated vs. dominant,

poor vs. rich, unconfident vs. confident, unassertive vs. competitive), four sub-scales for the B (traditional vs. modern, religious vs. science-oriented, conventional vs. alternative, conservative vs. liberal), and six sub-scales for the C dimension (untrustworthy vs. trustworthy, dishonest vs. honest, threatening vs. benevolent, repellent vs. likeable, cold vs. warm, egoistic vs. altruistic). We chose to split up the dimensions and implement repeated measures via sub-scales to increase the reliability of the measures.

In Study 3a, participants first completed these rating scales, and then their fluid intelligence was assessed by the *mini-q intelligence screening test* (cf. Baudson & Preckel, 2016). The test consists of 64 sentences, each followed by three forms (a triangle, a square, and a circle) creating a distinct figure. The sentences describe the relationship between these three figures (e.g., "The triangle prefers the circle"), and participants have to assess whether they are correct or not. The time frame is limited to three minutes and participants' total score is composed of the sum of correct answers. After the test, participants played five rounds of the DG in the role of the dictator (their initial endowment was 20 Cents per round). Importantly, the DGs were completely hypothetical, which means that participant could neither keep nor send any real money. The task took about 5 minutes.

In Studies 3b and 3c, we reversed the order and instructed participants to play the DG first (for one round only as the internal consistency of the five rounds was very high in Study 3a), and complete the A, B, and C scales and the intelligence screening afterwards. Also, we replaced the mini-q intelligence screening test by a shortened version of the Wilde Intelligence Test, (Wilde Intelligence Test; see Kersting, Althoff, & Jäger, 2008) that has previously been used by De keersmaecker and colleagues (2017). In this test, participants see a total of 10 target words, each accompanied by five other words, and are instructed to indicate for each target word

the word that comes closest to its meaning. A participant's total IQ score is the sum of correct answers. Study 3b was again hypothetical with participants being endowed with fictional $10 and asked to distributed them "as if", whereas we endowed participants with $1 in Study 3c as an additional bonus and asked them to send whatever share of this $1 to another randomly selected Mturker completing the same experiment. This decision was realized. Study 3b and 3c took about 12 minutes each.

Results

As expected, there was a significant positive correlation between money amount sent in the DG and self-reported communion, $r(502) = .20$, $p < .001$. Participants who sent more money in the DG rated themselves as higher in terms of communion (see Table 3). Moreover, there was a significant positive correlation between communion and agency, $r(502) = .15$, $p < .001$. Participants who rated themselves as higher in terms of communion also rated themselves as higher in terms of agency. However, neither the ratings for the A or B dimension, nor the intelligence ratings were related to money amount sent in the DG, all $rs(502) < .07$, $ps > .17$ (see Table 3).

Table 3. Correlations among higher rated agency (A), higher rated liberal beliefs (B), higher rated communion (C), and higher rated intelligence (IQ).

	A	B	C	IQ	DG
A	--	-.08	.15*	-.02	.03
B		--	.08	.01	.06
C			--	-.08	.20*
IQ				--	-.05

Note: * $p < .05$, ** $p < .01$, $N = 104$

Discussion

When participants assessed their own personality traits and played the DG themselves, hypothetically or with real money, only self-reported communion correlated with the money amount sent in the DG. Neither agency or political orientation, nor intelligence correlated significantly with the money amount sent in the DG. We need to acknowledge, however, that the present implementation of self-reports might not be the best approach to capture the A, B, and C dimensions.

An interesting finding is that participants' average sending rate in the DG across Experiments 3a-3c amounted to only 29 percent of their initial endowment, whereas participants' predicted sending rate in Experiment 2 amounted to 37 percent of the dictator's initial endowment. This finding dovetails with previous studies finding that people in social dilemma tasks (comparable to the DG) overall expect higher money sending rates from others than they are willing to send themselves (cf. De Bruin & Van Lange, 1999). Thus, not only the expected relations between A, B and intelligence, on the one hand, and DG behavior, on the other hand, appear invalid if transferred to the self, but also the expected overall sending rates in the DG do not align between self and others. Taken together, the results of Experiments 3a-3c indicate that the inferences participants draw from DG behavior about personality traits and vice versa do not reflect reality but, instead, reflect participants' social construction of reality.

General Discussion

Most research investigating the DG takes a top-down, deductive approach to predicting dictators' behavior and relies on theorist's definitions of rational behavior. We took a bottom-up approach and asked participants as social perceivers to predict dictators' behaviors based on their

personality traits and vice versa. Across three experiments, we provided evidence that people infer bi-directional relations between dictators' behavior in the DG and their respective personality trait profiles. Participants evaluated fair dictators as less agentic and less conservative, but more liberal, more communal, and more intelligent than unfair dictators (Experiments 1a and 1b). Vice versa, participants predicted that more liberal, more communal, and more intelligent would send fairer shares to receivers than more conservative dictators (Experiment 2 and Supplementary Materials Experiments 4a and 4b). However, agency did not serve as a prognostic point of reference for level of fairness predictions.

In three further studies, we examined factually correlations between behavior and personality traits by assessing participants' own decisions in the DG and self-reports on ABC as well as short intelligence screening tests (Experiments 3a-3c). However, only self-reported communion correlated with the money amount sent in the DG, whereas agency, political orientation, and intelligence did not. In the following, we now discuss the implications of these results for each personality dimension separately, and why participants made the observed inferences.

Agency/ socio-economic success and DG behavior

According to the ABC model of stereotype content (Koch et al., 2016), agency is deemed to be the most important dimension for organizing and distinguishing between social groups; agency, construed as competence, is also highly relevant in the Stereotype Content Model (Fiske et al. ,2006). However, one could argue that agency information, due to its inherently dual nature (cf. Abele & Wojciszke, 2007), is rather ambiguous in the context of DG behavior and might suggest at least two different meanings: On the one hand, agency can be conceptualized as a dimension of self-profitability and efficiency in pursuing egoistic goals. In the context of the DG

this would translate to the dictator keeping all the endowment to the herself. On the other hand, agency can, under certain conditions, also be conceptualized as a dimension of other-profitability and efficiency in pursuing altruistic goals (cf. Abele & Wojciszke, 2007), which in turn would translate to sending at least some positive amount in the DG to the receiver. According to Peeters (1992), whether or not other people benefit from one person's agency is dependent on the goals and intentions of the agentic person. But how should people derive a given dictator's goals and attentions based on agency information alone if this information is compatible with two different meanings? This interpretive difficulty might be one reason why agency information failed as a proper reference point for predicting DG behavior. Ultimately, one may argue that high agency/ socio-economic success implies excelling at maximizing self- and other profitability simultaneously, which the DG unfortunately does not allow for because it is a task of either/or.

Conservative-progressive beliefs and DG behavior

The second fundamental dimension on which people distinguish between social groups, that is the political beliefs dimension, was used by participants as a criterion for evaluating DG behavior and a reference point for predicting DG behavior. With the exception of Experiment 1b, where the inference was only numerically, but not statistically replicated, participants believed fair dictators to be more liberal/less conservative, and more liberal/less conservative dictators to be more fair.

This relation might follow from the fact that conservatism entails by definition the intention to preserve the status quo, whereas liberalism is characterized by the intention to change the status quo. Transferred to DG behavior, preserving the status quo means that dictators keep the initial endowment entirely to themselves and thus change nothing about the receiver's payoff structure (which remains zero). In contrast, changing the status quo in the DG implies

altering at least something about the initial payoff distribution which means sending some positive amount of money. These considerations are in line with our data as we find exactly this pattern of results: Participants link higher sending rates in the DG, that is, changing the status quo, to liberalism and lower sending rates in the DG, that is, preserving the status quo, to conservatism.

In a related vein, Koch and colleagues (2016) argued that one further critical function of classifying the political beliefs of social targets is striking a balance between all sorts of exploitation, which is an endeavor of conservative groups, and exploration, which is an endeavor of liberal groups, respectively (see also Jost, Federico, & Napier, 2009). This argumentation is again reflected by our DG data: Exploitation in the context of DG behavior clearly means keeping all available resources (i.e., the initial endowment) to the self, which is what participants tend to expect from conservative dictators, whereas allocating some portion of available resources to the receiver can be considered an act of active non-exploitation (despite the dictator's power to exploit the receiver without facing consequences; cf. Hilbig & Zettler, 2009), which is what participants tend to expect from liberal dictators. Thus, participants are capable of spontaneously employing the B dimension on DG behavior in a meaningful and informative way.

Communion and DG behavior

Across all experiments, the most reliable and stable relation we found is the one between DG behavior and communion: Participants linked high sending rates (i.e., fair behavior) in the DG to high attributions of communion and vice versa; and this link holds even true for self-assessments. However, this is by far not surprising because communion is conceptualized as the dimension of fostering other-interest/ -well-being, cooperativeness, trustworthiness,

interdependence, arises from benevolent intentions, and relates to social desirability, morality, nurturance, and so on (for an overview, see Abele & Wojciszke, 2014). Thus, different than for the other dimensions of social perception, the meaning of communion in the context of DG behavior is unambiguous. Put differently, given the inherently relational context of DG behavior, it seems intuitively plausible that differences in relational orientation (i.e., communion), can be readily applied within this context.

Intelligence and DG behavior

The probably most interesting of our findings is the relation between fairness level in the DG and perceived intelligence: Contrary to our initial expectation, participants, overall, inferred high intelligence from fair behavior and vice versa. From a theoretical point of view, this finding is surprising since it is at contrast with the standard model of the rational choice approach (cf. Sen, 1971); that is, the homo oeconomicus model which pivots on the assumption that rational agents should prefer having more money to having less, that is, unfair behavior in the DG. Therefore, we a priori hypothesized that participants should infer high intelligence from economically rational behavior, and not the other way around. Such a finding would also have fitted with the often-observed negative correlation of warmth and competence in social perception (Kervyin, Yzerbyt, & Judd, 2010). In addition, when considering that the DG is an anonymous one-shot interaction, with no opportunity for reciprocal behavior or punishment by the receiver, there seems to be no reason for dictators to send anything at all.

However, this reasoning might neglect that people might be "wired" to put behavior into its larger context. In real-life situations, pursuing the interest of others does usually yield benefits

or gains, albeit they are not necessarily of monetary nature and often long-term instead of short-term. Collective rationality (cf. Colman, Pulford, & Rose, 2008) is a construct related to pursuing the interest of others and describes when people are motivated to consider not only outcomes for the self, but also outcomes for others, and equity in outcomes (Van Lange, 1999; 2008). If a person does endorse collective instead of individual rationality (i.e., maximizing outcomes only for the self; see Kahan, 1974), this person should in fact consider efforts to get the best outcomes for all, which translates to sending positive amounts in the DG. Thus, the interpretation of intelligence information might be bound to the type of rationality a person endorses.

Relatedly, Stellar and Willer (2018) subsume breaches of norms of fairness under the notion of immoral acts or moral transgressions and investigate the capacity of morality information to causally affect evaluations regarding competence. Importantly, they define competence as knowledge, skills, and contend that social intelligence is central to perceptions of competence (Stellar & Willer, 2018). Thus, these authors' operationalization of competence corresponds to our intelligence measurements (and not to our agency measurements). Most importantly for the present research, Stellar and Willer investigated a variety of moral transgressions, and among them selfish behavior in the Trust Game (TG), which is highly comparable to selfish behavior in the DG. As in the DG, in the TG one player decides how much of an initial endowment she wants to send to another player (the trustee). The difference to the DG now is that the sent amount is multiplied by some factor – Stellar and Willer (2018) chose 4 – and the trustee has to decide how much of the money received she wants to send back to the other player. Stellar and Willer (2018) find that participants who observed trustees acting immorally, that is, keeping all the money to themselves, rated them as significantly less competent than moral trustees who chose to send back half of the money. This result is well in

line with our findings and supports the conclusion that unfair or immoral behavior is interpreted as an indicator of lower intelligence, which Stellar and Willer encapsulate as the *inept sinner hypothesis* (2018). Future research might examine specific hypothesis regarding the different subtypes of intelligence and measure them separately.

It is further conceivable that evaluating an unfair dictator as poor in terms of intelligence could be a form of punishment for his moral transgression (i.e., the low money amount sent). However, this is unlikely the explanation for the bidirectional relation. Predicting that a dictator of poor intelligence would also behave unfairly does clearly not classify as a reasonable punishment at all. Yet there is a somewhat related explanation to consider. Punishing unfair behavior is often explained in terms of reputation management (cf. Jordan, Hoffman, Bloom, & Rand, 2016). Thus, evaluating unfair behavior as low in intelligence and predicting that low intelligence is a precursor for unfair behavior might be an investment in one's own reputation (cf. Raihani & Bshary, 2012). More specifically, linking high intelligence and fairness to each other thus might be an attempt to signal own intelligence and appreciation for fairness.

Overall, one should also consider that people who display immoral or unfair behavior (regardless of in which domain) risk exclusion from their social group or even society as a whole (cf. Stevens & Fiske, 1995), and often fail to pay attention to the pursuit of long-term goals (Axelrod, 1984). Therefore, it is reasonable to assume that unfair behavior can be conceptualized as a low threshold signal of low intelligence, which people have learned and can readily apply. In sum, the rational self-interest assumption of the homo oeconomicus model appears to be inconsistent with peoples' perception of intelligent and unintelligent behavior in the DG. That is, fair behavior is not seen as irrational but in fact as rather intelligent and may be perfectly rational in light of what peoples' values or long-term goals are. However, this perception does not seem

to reflect reality in the sense that people align their own behavior according to their gauge for others, since we do not find intelligent people to behave any more or less fairly than unintelligent people in the DG.

Limitations and future directions

In Experiments 1a, 1b, and 2, we relied upon compound scales to measure (or base predictions on) the A, B, and C dimension which requires judging/predicting DG behavior on all subcomponents of A, B, and C at once. It could be that the compound scales prompted participants to just pick up the most salient cue, that is, the adjective most applicable to DG behavior at first glance, which could sometimes be a misleading strategy and fail to capture the dimensions as a whole. More specifically, it could be that participants, for instance, based their judgments on agency primarily on the subcomponent "poor versus rich" without taking into account that agency also entails, for instance, "low status versus high status". This again could explain why we mostly found zero effects for agency and is also worth to take into consideration when interpreting the negative correlations between agency and intelligence, as found in the first experiments, which appears to be of questionable read-world validity. In fact, it is by far more plausible to assume that real-world correlations between agency and intelligence are rather high since it is frequently the people who score highly in intelligence who are also high status, powerful, competitive, and so on. However, we also failed to find a positive correlation between agency and intelligence when using separate scales for measuring each subcomponent of self-perceived agency (Experiments 3a-3c) which might suggest that the relation between agency and intelligence is not as straightforward as one might assume. Indeed, Koch and colleagues (2016) argue that a manager, for instance, might have high status and wealth and not be smart at the same time. Future work should examine more in-depth how these different measures of efficacy

in a broader sense, that is, intelligence versus agency, relate to one another in both self- and other perception.

A final remark concerns the generalizability of the present results to real-life situations. Although there is research suggesting that behavior in the DG can in fact be transferred to behavior in real-life situations (e.g., Franzen & Pointer, 2013), payoff structures outside the laboratory might nevertheless be less transparent, discouraging an ad-hoc analysis in terms of the personality traits of the decision maker. However, as posed in the introduction of this article, daily life contexts resembling the DG do exist. In fact, DG structures emerge whenever there are insignificant personal benefits of handing off money, a (social) norm prescribing the appropriate behavior is missing, and the executor of the prosocial versus antisocial behavior remains anonymous. More importantly, it is difficult to imagine an aspect of economics which cannot be characterized by conflicting interests in terms of subjective versus collective rationality – or self- versus other-interests, respectively. In our view, extrapolation of the present results to real-life situations calls for future research on, e.g., on how the DG could be implemented as an indirect measure of social perception.

Conclusions

The present work allows two conclusions. First, we illustrate that peoples' displayed fairness level in the DG influences how observers perceive them regarding specific dimensions of social perception. Vice versa, we also show that outlining peoples' characteristics regarding specific personality traits influences the fairness level in the DG observers expect from them. We find reliable relations between fairness level in the DG and social perception for the conservatism side of the belief dimension, communion dimension, and level of intelligence.

Across all experiments and studies, fairness level influenced perceived conservatism, communion, and intelligence, and ascribed conservatism, communion, and intelligence predicted expected behavior in the DG.

Second, our findings contribute to the substantial body of evidence showing the descriptive inadequacy of the homo oeconomicus model for understanding economic rationality. In fact, economic (game) theory misses an important part of the picture, that is, that selfish behavior in the DG is not only perceived as unfair but also as unintelligent, which might be a further substantial motivation for people to avoid displaying narrow self-interest in economic games.

Supplemental Materials

Experiments 4a and 4b: Predicting behavior in Dictator Games

Participants observed different dictators' personality traits on the A, B, or C dimension, or on an intelligence scale, using analog slider scales, and asked to predict the money amount the dictators would presumably send based on this information.

Method

Participants and design. In Experiment 4a, we employed $N = 90$ ($n = 40$ females, $n = 50$ males; $M_{age} = 34$, $SD = 10$) Mturk workers and in Experiment 4b, we employed $N = 90$ ($n = 31$ females, $n = 59$ males; $M_{age} = 39$, $SD = 12$) Mturk workers who received \$0.50 for participating. We manipulated dictators' locations on the A, B, and C dimensions, and dictators' level of intelligence within-participants. There were no between-participants manipulations.

Materials and procedure. The method was similar to Experiment 2 except that we presented the information indicating whether a given dictator scored high versus low on either the A, B, or C dimension or on an intelligence scale in a graphical format. More specifically, we used the same 100-point analog slider scales as in Experiment 1a and 1b and marked a high score on a given dimension by setting the slider to 75 and a low score by setting the slider to 25 (Experiment 4a). In Experiment 4b, we used the opposite scaling and marked a high score by setting the slider to 25 and a low score by setting the slider to 75, respectively. This means that, in Experiment 4b, high agency, liberalism, and high communion were presented at the left endpoints of the scale and not at the right endpoints as in Experiment 4a.

However, we did not use the opposite scaling for intelligence level, since we thought that presenting high intelligence at the left endpoint of a scale would be to counterintuitive and probably confuse participants.

Results

Experiment 4a. The 2 (direction: high, low; within-subjects) x 4 (evaluative dimension: A, B, C, IQ; within-subjects) repeated-measures ANOVA yielded a main effect of direction, $F(1, 89) = 75.58$, $p < .001$, $\eta_p^2 = .45$, a main effect of evaluative dimension, $F(3, 87) = 19.25$, $p < .001$, $\eta_p^2 = .40$, and a significant interaction between direction and evaluative dimension, $F(3, 87) = 63.77$, $p < .001$, $\eta_p^2 = .69$.

Again, simple effects tests revealed that participants predicted more conservative dictators to send less money ($M = 4.04$, $SD = 2.33$) compared to more liberal dictators ($M = 5.33$, $SD = 2.19$), $t(89) = 3.98$, $p < .001$, $d_z = 0.42$. Also, participants predicted more communal dictators to send more money ($M = 6.47$, $SD = 1.81$) compared to less communal dictators ($M = 1.48$, $SD = 2.13$), $t(89) = 18.89$, $p < .001$, $d_z = 1.99$.

More importantly, participants also again predicted more intelligent dictators to send more money ($M = 4.74$, $SD = 2.12$) compared to less intelligent dictators ($M = 3.73$, $SD = 2.71$), $t(89) = 2.77$, $p = .007$, $d_z = 0.29$. No difference in predicted money amount as a function of agency occurred ($t < 0.3$). The condition means are depicted in Figure 4.

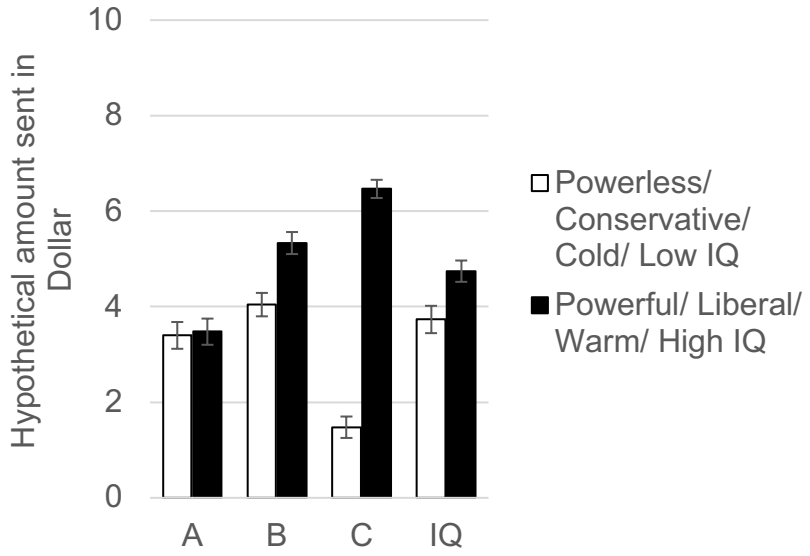


Figure 4. Money amount sent as a function of evaluative dimension. Error bars represent standard errors of the means.

Experiment 4b. Again, the 2 (direction: high, low; within-subjects) x 4 (evaluative dimension: A, B, C, IQ; within-subjects) repeated-measures ANOVA yielded a main effect of direction, $F(1, 89) = 6.77$, $p = .011$, $\eta_p^2 = .07$, a main effect of evaluative dimension, $F(3, 87) = 10.67$, $p < .001$, $\eta_p^2 = .27$, and a significant interaction between direction and evaluative dimension, $F(3, 87) = 16.37$, $p < .001$, $\eta_p^2 = .36$.

This time, simple effects tests revealed only a significant difference in prediction as a function of communion, such that participants again predicted more communal dictators to send more money ($M = 5.88$, $SD = 2.54$) compared to less communal dictators ($M = 3.18$, $SD = 3.52$), $t(89) = 6.45$, $p < .001$, $d_z = 0.68$. However, no further differences in predicted money amount as a function of the other dimensions surfaced ($t < 1.7$). The condition means are depicted in Figure 5.

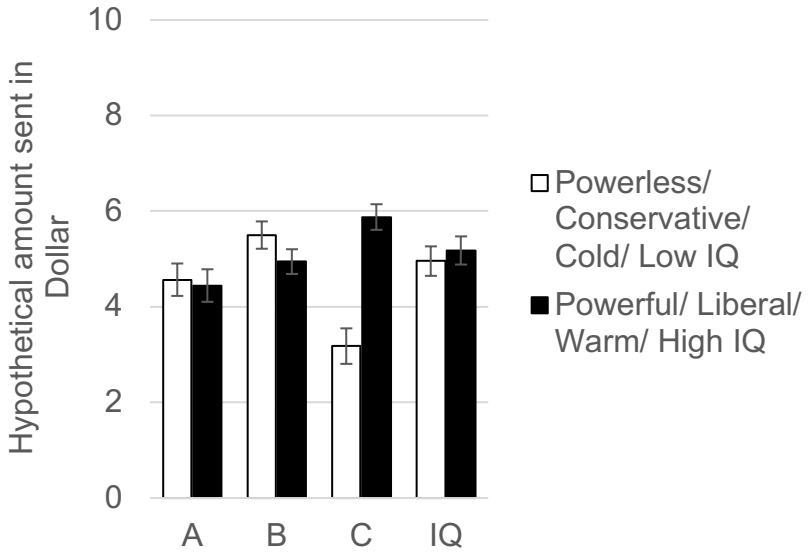


Figure 5. Money amount sent as a function of evaluative dimension. Error bars represent standard errors of the means.

Discussion

Replicating the results of Experiment 2, participants in Experiment 4a again predicted that more conservative, or less communal, or less intelligent dictators would send less money compared to more liberal, or more communal, or more intelligent dictators. However, in Experiment 4b, only the results for the C dimension are in line with Experiments 2 and 4a while the results for the B dimension and intelligence level did not replicate. The only difference between Experiment 4b and 4a, however, was that in Experiment 4b the opposite scaling for all dimensions except from intelligence level was realized.

Moreover, in an initial attempt to conduct this experiment, we did not plan to run the right and left scaling conditions as separate experiments but to simply include direction of scaling as an additional controlling factor, which we did not expect to have any influence. But since a technical problem occurred during the data collection, we could only use the data points from the right scaling condition and had to re-collect the data points for the left scaling condition. Thus, we chose to present the data as separate experiments instead of simply factoring in the direction of scaling. There was also a further problem with the re-collection of the data (Experiment 4b), namely our sample of observation not being independent due to multiple participations. Unfortunately, we made the technical mistake of allowing Mturkers to participate in both Experiment 4a and 4b, and also – which is statistically even more problematic – the mistake of participating in Experiment 4b for multiple times.

But beyond these technical problems, we also, in hindsight, encountered a design problem in both Experiments 4a and 4b, which violates the high level of methodological rigor we aspire to. More specifically, even if the results of Experiments 4a and 4b would have suggested a bi-directional link between all the dimensions of the ABC model and the dictators' level of

intelligence, respectively, and DG behavior, these results would have left open the alternative explanations of polarity correspondence (Proctor & Cho, 2006) and numerical priming (Wilson et al., 1996). Polarity correspondence is a general principle of compatibility in binary choice tasks meaning that when stimulus and response sets are structurally similar, a given stimulus automatically activates its compatible response. Applying polarity correspondence to the present experiments would imply that presenting the stimulus, that is, a fixed rating on a given a scale, on the left side (vs. right side) of the scale should automatically activate a tendency to respond by moving the slider to the left (vs. right) end of the scale.

In other words, if the stimulus participants see is a dictator scoring high on the A, B, or C dimension or intelligence, the compatible response that is activated is the expectation of this dictator sending a rather high money amount in the DG (and vice versa for a low rating on the A, B, or C dimension or intelligence). In a similar vein, a numerical anchor of a high (vs. low) rating on the A, B, or C dimension or level of intelligence should make that high (vs. low) number and others near it more accessible and results in anchoring in the DG judgment, that is, again, a rather high (vs. low) money amount sent (cf. Wilson et al., 1996). Both these alternative explanations can be ruled out by Experiment 2 since the stimuli employed in this task do neither allow for polarity correspondence nor numerical priming to be activated. This is why we chose to present Experiment 2 in the main manuscript and report Experiments 4a and 4b only here for full disclosure regarding all the manipulations we conducted.

Experiments 5a and 5b: An indirect approach of behavior evaluations in Dictator Games

In Experiments 1a, 1b, 2, 4a, and 4b, we asked participants explicitly and straightforwardly how fairness levels in the DG relate to dimensions of social perception and intelligence. We found a bi-directional link for perceived intelligence, communion, and political

orientation. However, the relation to agency was less clear. Experiment 5a and 5b used a more indirect approach. We instructed participants to imagine applying for specific jobs and taking part in an Assessment Center (AC) for these jobs. Then we asked them to play the DG and tailor their behavior trying to fit the job they are applying for. In other words, we asked them to align their fairness level so that it matches the personality traits profile (A, B, C, and IQ) of an ideal-typical candidate for the respective job. If participants' fairness levels match the ones we observed previously, we have more indirect information for the inferences people make from behavior in the DG to personality traits.

Method

Participants and design. We employed 101 (36 females, 65 males; M_{age} = 37, SD = 11) Mturk workers in Experiment 5a and 100 (40 females, 60 males; M_{age} = 37, SD = 11) Mturk workers in Experiment 5b who received $0.40 for participating. We manipulated type of job within-participants. There were no between-participants manipulations.

Materials and procedure. We instructed participants to imagine applying for ten different jobs and play the DG as part of an AC procedure during the job application. The cover story explained that DG behavior is diagnostic for candidates' suitability for the job. Please note that participants never believed to be taking part in a real AC, but rather, that we are interested in people's behavior in the DG who aim for a given job.

We selected the jobs based on a pretest conducted with 100 different Mturkers (36 females, and 64 males; M_{age} = 41, SD = 10). We drew the fifteen jobs employed in this pretest from a list of 150 US occupations rated in terms of A, B, C, and IQ (for more details, see Imhoff, Koch, & Flade, 2018), ensuring that scoring high on only one of the three personality traits or intelligence, respectively, was a crucial requirement for performing well in a given job. We

selected three jobs per trait; the fifteen jobs resulted from the assumption that job applications typically require positive assessments (i.e., high agency, high communion, high IQ), but the B dimension is not marked in that respect, requiring three jobs with a need for high conservatism, and three jobs with a need for high liberalism.

In the pretest, we presented participants with these fifteen jobs (aereospace engineer, bank manager, chief executive, commissioning agent, computer programmer, credit analyst, data analyst, elementary school teacher, paediatrician, personal care assistant, police officer, priest, product designer, psychological counselor, software developer), and, for each job, asked them to create a distinctive profile of personality traits. We further instructed them that the profiles of personality traits they would create should point out how people aspiring to have the respective jobs ideally should be like. Then, participants created the profiles by using the same slider scales for the A, B, and C dimension, and level of intelligence as in the previous experiments.

Based on the pretest results, we selected the following jobs: Chief executive and police officer as jobs requiring a high level of agency, bank manager and credit analyst as jobs requiring a high level of conservatism, product designer and software developer as jobs requiring a high level of liberalism, elementary school teacher and personal care assistant as jobs requiring a high level of communion, and aerospace engineer and pediatrician as jobs requiring a high level of intelligence. The sequence of all 10 resulting job trials was re-randomized anew for each participant.

Experiments 5a and 5b were highly similar with one difference: In Experiment 5a, we did not inform participants about the basic concept of an AC and only asked them at the end of the experiment whether they were familiar with ACs before the experiment. Because 50.5% of participants indicated not being familiar with ACs, we started Experiment 5b by explaining the

basic concept of an AC, and also asked participants at the end of the experiment whether they were familiar with the basic concept of an AC before this experiment. Both Experiments 5a and 5b took about 4 minutes each.

Results

Experiment 5a. The challenge of further analyzing our results was that we needed to find a suitable and valid benchmark to be used for conducting meaningful comparisons in the present design. This was not a trivial challenge since there are various statistical techniques that can be used for this. From a both theoretical and statistical perspective, we argue that using the grand mean derived from our previous experiments as a benchmark for comparisons is most informative because of first, the high data we have ($N = 280$), and second, the high degree of methodological overlap between the previous and the present DG setup. From a purely statistical perspective, however, it is also informative to use Tukey's test since it allows for testing all possible pairwise comparisons among means. Thus, we report both analyses in the following.

First, we conducted tests of differences in predicted money amount sent as a function of job requirements by testing against the grand mean (derived from Experiments 2, 4a, and 4b) which is a sending rate of 41.8% of the initial endowment. One-sample *t* tests revealed that participants applying for jobs requiring high levels of conservatism sent less money ($M = 3.68$, $SD = 2.53$) compared to the 41.8% base rate, $t(100) = 1.99$, $p = .049$, $d = 0.20$, whereas participants applying for jobs requiring high levels of intelligence sent more money ($M = 5.20$, $SD = 2.55$) compared to the base rate, $t(100) = 4.03$, $p < .001$, $d = 0.40$.

Furthermore, analyses revealed that participants applying for jobs requiring high levels of communion sent also more money ($M = 4.75$, $SD = 2.86$) compared to the base rate, $t(100) = 1.99$, $p = .049$, $d = 0.20$, whereas money amounts participants sent when applying for jobs

requiring high levels of agency (M = 4.37, SD = 2.57) or liberalism (M = 4.46, SD = 2.31) did not differ from the base rate (t < 1.3).

In addition, we conducted post-hoc comparisons among the five means using Tukey's test at p = .05. Tukey's test revealed that participants applying for jobs requiring high levels of conservatism sent less money (M = 3.68) than participants applying for jobs requiring high levels of intelligence (M = 5.20) or high levels of communion (M = 4.75). There were no further significant differences as a function of personality traits requirements.

Experiment 5b. Again, one-sample t tests revealed that participants applying for jobs requiring high levels of conservatism sent less money (M = 3.45, SD = 2.36) compared to the 41.8% base rate, $t(99) = 3.09$, p = .003, d = 0.31, whereas participants applying for jobs requiring high levels of intelligence sent more money (M = 4.74, SD = 2.32) compared to the 41.8% base rate, $t(99) = 2.42$, p = .017, d = 0.24.

Furthermore, analyses revealed a descriptive tendency to send more money when applying for jobs requiring high levels of communion (M = 4.67, SD = 2.82), $t(99) = 1.74$, p = .085, d = 0.17. However, money amounts participants sent when applying for jobs requiring high levels of agency (M = 4.31, SD = 2.37) or liberalism (M = 4.03, SD = 2.06) did not differ from the base rate (t < 0.8). The condition means for each type of jobs are depicted in Figure 3b.

Post-hoc comparisons among the five means using Tukey's test at p = .05 again showed that participants applying for jobs requiring high levels of conservatism sent less money (M = 3.45) than participants applying for jobs requiring either high levels of intelligence (M = 4.74) or high levels of communion (M = 4.67). There were no further significant differences as a function of personality traits requirements.

Discussion

Even in this more indirect approach, participants stick to inferring that sending fair amounts of money in the DG indicates both high communion and high intelligence. Across all experiments so far, the economically rational behavior in the DG, that is, sending no money at all, seems to be linked to low intelligence. Also, participants stick to inferring that sending rather unfair amounts indicates high conservatism. Thus, we again found the subjective links between fairness levels in the DG and the communion and belief dimensions of social perceptions as well as intelligence. However, the link to the belief dimension is confined to the conservatism side, not the liberalism side. These findings match up with the results of the previous experiments and clarify that participants understand what the applied dimensions of social perception and intelligence represent and can implement the links between these dimensions and DG behavior in practical terms.

With regards to the A dimension, participants here hold insufficient beliefs about how candidates applying for jobs requiring high levels of agency should adjust their DG behavior in a manner consistent with the requirements for these jobs. This reflects the findings from Experiment 2 in which the link between high agency and DG behavior was also inconclusive. Here, however, the same inconclusiveness applies to liberalism, which is not consistent with our previous results.

Furthermore, we need to acknowledge that participants believe that, of all jobs, those jobs implying and ever-present exposure to money (bank manager and credit analyst) could be most likely achieved by sending the comparably lowest money amounts in the DG. Thus, those jobs that are best described by a high level of conservatism are jobs that people might mentally link with financial illiberality or even greed.

Chapter 5 – Discussion

In Chapter 1, I presented a brief historical abstract of the development of BE, which has been one of the most significant accomplishments in economics over the last three decades. Viewed from today's perspective, it turned out a success to ground economic theories in empirical experimental evidence about how people really decide, think, and behave rather than in deductions from fixed, abstract, a priori concepts such as strict utility maximization (cf. Camerer, 1999; Rabin, 2002). Ultimately, this success was even testified by the fact that two Nobel Prizes have been awarded to behavioral economists, Daniel Kahneman and Richard Thaler. Seen from this angle, (behavioral) economists can and should take pride in their major steps forward (cf. Pesendorfer, 2006; Bruni & Sugden, 2007).

However, I argue that there are actually two sides of the BE medal and one is taken much more account of than the other. Certainly, there is the side of (neoclassical) economics having substantially profited from psychology (Chetty, 2015; Angner, 2019)[39], but there is also the mutual side of (social) psychology having benefitted from economics. For instance, an important area where social psychology and economics intersect is the interest in the study of dynamic, interdependent decision-making processes. Such processes arguably can be best modelled and investigated by laboratory experiments employing economic games (Eckel, 2007; Camerer & Fehr, 2004). In other words, practicing BGT (Camerer, 2003). In the early steps of this approach, psychologists – following their economic role models – were primarily interested in explaining the behavioral anomalies occurring in economic games. This is, for instance, reflected by the fact that the Journal of Economic Psychology (JEP) paper of Güth and Tietz (1990) on the UG alone

[39] For instance, taking into account social psychological concepts such as motivation, attitudes, expectation, and social learning has led to a better understanding and an increase in predictability of the macro-economic "ups" and "downs" (cf. Brandstätter, Güth, & Kliemt, 2009).

has been cited 863 times[40] (making it the most often cited JEP paper of all times), with the vast majority of these citations implementing the UG as the paramount object of interest. However, as I argued in Chapter 2, it is now time for a shift in focus from investigating anomalies in economic games to employing economic games as methodological vehicles to foster understanding of a wide range of social behavior. To put it straight, future research should regard economic games as a means to a greater end rather than the end in themselves. Economic games are mere models reflecting specific aspects of social interactions and decision-making in every-day life. Thus, the gain of knowledge that can be achieved from their experimental implementation may go far beyond game-theoretical insights. In fact, employing economic games as tools in social cognition research may generate interesting yet unexplored research question, introduce new theoretical perspectives on important social concept, and hence advance both the fields of BE and social cognition research.

In Chapter 3 and 4, I introduced two different examples for such novel, unexplored research questions treating economic games as the mere vehicles for investigation. More specifically, in Chapter 3, I shifted the focus from why responders in the UG decide to reject or accept a given offer to how their behavior may foster a profounder understanding of the role of social distance and outcome value in the context of decision-making for others. Across 11 experiments, I showed that when participants decide about accepting or rejecting offers in a hypothetical UG for either themselves or for clients of varying social distance, they systematically accepted more advantageous offers for themselves, family members, and friends than for strangers (Experiments 1a-5b). That is, social distance influenced participants' displayed level of fairness. The driving mechanism of this client privileging effect was an increase in joy

[40] Interestingly, until 2005, the paper has only been cited 132 times, which is an increase in citations by approximated factor 7.

participants experienced when deciding on behalf of close (vs. more distant) clients (Experiment 7). Arguably, the most puzzling finding was that, across all experiments, offers exceeding the equal split in favor of the decision-maker or her clients were not always accepted. This finding suggests that participants may factor in some sort of non-monetary concern and raises the question of whether joy for others is the only plausible mechanism contributing to the observed patterns of results. I suggest that, at least from a theoretical perspective, there may be a further conceivable mechanism.

Building further bridges I: social distance and inequity aversion

As briefly outlined in Chapter 2 (pp. 15-17), both psychologists and economists provide models addressing distributive decision makers' concerns going beyond absolute monetary values, namely concerns for fairness. Although these models differ formally, their central idea is the same: people may not only care about their absolute monetary outcomes but also about their relative monetary shares (e.g., Loewenstein et al., 1989; Bazerman et al., 1995; Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000). Thus, there are two outcome components that must be taken into consideration when people engage in distributive decision-making. A relative payoff component that is concerned with both positive discrepancies (*advantageous inequity*) and negative discrepancies (*disadvantageous inequity*) between decision makers' own as compared to others' outcomes and an absolute payoff component that is unaffected by inequity.

Research suggests that people generally derive the most utility from the relative payoff component when outcome distributions between self and other are equitable (e.g., Bethwaite & Tompkinson). The consequence of this is a fundamental aversion against inequitable outcomes. Inequity aversion is, for instance, modelled by the Fehr and Schmidt (F-S) model of social preferences (Fehr & Schmidt, 1999). Formally, the F-S models assign utility based on a decision-

maker's own outcome and an other-regarding component that compares the decision maker's outcome with the outcomes of others. An implication of the F-S model then is that a decision maker may prefer to decrease the differences between her own and others' outcomes, even if this requires the decision maker to diminish her own absolute outcome (i.e., forgo some monetary payoff). Although people seem to exhibit a robust aversion against both disadvantageous and advantageous inequity, the latter aversion appears to be somewhat less pronounced (Fehr & Schmidt, 1999). However, I argue that inequity aversion models miss out an essential component that needs to be taken into consideration. By this component I mean a precise specification of *which other person's* payoffs a decision maker is comparing herself to. This is an important yet so far largely unexplored question. Specifying this component in terms of social distance between decision maker and the other person could further clarify the nature of aversion against both disadvantageous and advantageous inequity.

From the view of inequity aversion, one may argue that a further possible explanation for the pattern of results presented in Chapter 3 (Experiments 1a-5b) could be that participants were also aversive against putting their socially distant clients into an advantageous position over a hypothetical, anonymous proposer. However, since participants accepted hyper-fair offers for both themselves and socially close clients to a great extent, they seem to display no such aversion against advantageous inequity emerging in favor of themselves or their socially close ones. Thus, aversion against advantageous inequity may be construed as a function of social distance: the more socially distant decision targets are from decision makers, the higher the decision makers' aversion against advantageous inequity tends to be. This reasoning would also be in line with the decreased level of joy for others participants reported when facing hyper-fair

offers addressed to socially distant clients (Experiment 7). Inequity aversion is by definition a highly negative emotion – impeding the emergence of positive emotions such as joy.

However, there is one theoretical problem in applying the F-S model (1999) or the Bolton and Ockenfels (B-O) model (Bolton & Ockenfels, 2000) to the results presented in Chapter 3: both these models assume that inequity aversion is dependent on personal payoffs being at stake (Fehr & Schmidt, 1999; Bolton & Ockenfels, 2000). Thus, these models formally do not allow for decision makers being concerned with the inequity that potentially emerges between other people (Fehr & Schmidt, 1999) – which is well in line with orthodox economic reasoning.

However, I argue that this reasoning ultimately may be too short sighted. Concerns with inequity emerging between other people possibly might be just as important as concerns with inequity affecting the self. This claim is, for instance, supported by research showing that people have a decision aversion against making inequitable distributions between others with equal rights to the good (Beattie, Baron, Hershey, & Spranca, 1994) and children are even willing to discard a resource over distributing it inequitable among others (Shaw & Olson, 2012; see also Shaw & Knobe, 2013). Moreover, research showed that people try to avoid appearing partisan when distributing resources among others (Choshen-Hillel, Shaw, & Caruso, 2015), and this behavioral tendency seems so strong that Gordon-Hecker et al. (2017) even introduced a term to capture it: "inequity responsibility aversion". The difference between inequity responsibility aversion and "pure" inequity aversion lies in the fact that inequity responsibility aversion can explain why participants were less inequity averse when given the possibility to use a random device to distribute resources between others (Gordon-Hecker et al., 2017). In sum, there is a growing (psychological) research basis for the claim that inequity aversion may also emerge

when no personal payoffs are at stake and the results of Chapter 3 may be seen as additional support in this vein.

I further argue that – on condition that the results of Chapter 3 are actually indicative of participants being aversive against putting a socially distant client into an advantageous position over a third party (i.e., the proposer) – my findings also may shed light on an overlooked social comparison process in the UG. While previous research showed that participants compare between the offers a proposer offers to themselves versus other responders (Knez & Camerer, 1995) or dummy responders (Güth & Van Damme, 1994), the findings of Chapter 3 may hinge on a comparison which decision makers makes between their clients and the proposer, a social relationship not considered before in UG research.

Returning to the F-S and the B-O model, I suggest that the findings of Chapter 3 may speak to a reconsideration of the following. First, the so far neglected model component of the identity of the person being the target of an outcome distribution and hence a potential target of an inequity implementation. Second, the relevance of the domain of hyper-fair offers for investigating decision makers' concerns with equity and fairness in the UG (cf. Hennig-Schmidt et al., 2008). Third, the importance of inequity aversion resulting from allocating outcomes not only between self and other but also between *other and other*, and thus the potential introduction of a theoretical distinction between social preferences that are de facto impartial (i.e., free of any self-interest) versus not. All these points may be relevant for a more profound understanding of the nature of inequity aversion and thus should be considered when modelling this construct in future research. Also, future research may further investigate the influence of the interplay between inequity aversion and social distance on participants' choices when deciding on offers on behalf of others (e.g., their clients) in the UG. A concrete example in this vein is to

orthogonally manipulate social distance between decision maker and her client, on the one hand, and social distance between decision maker and proposer, on the other hand.

Building further bridges II: epistemic versus instrumental rationality

Chapter 4 addressed the aim of shifting the focus from regarding economic games as the pivotal object of interest to employing games as methodological tools to foster understanding of a broad range of social behavior from a quite different angle compared to Chapter 3. Specifically, Chapter 4 shifted the focal question from why dictators opt for allocating a certain amount of money to how dictators' behavior may inform and shape social perception and inference processing. In following this aim, Chapter 4 explored the bi-directional relations observers infer between dictators' behavior (i.e., money amount allocated to receivers), the stereotype dimensions as proposed by Koch et al. (2016), and intelligence in hypothetical DGs.

The key findings of the six experiments presented in Chapter 4 were: first, observers perceived unfair – but economically rational – dictators as more agentic and conservative, but less communal, less liberal, and less intelligent than fair – but economically irrational – dictators (Experiments 1a and 1b). That is, displayed level of fairness influences social perception. Second, and vice versa, participants expected more conservative, less communal, or less intelligent dictators to send less money compared to more liberal, more communal, or more intelligent dictators (Experiments 2 and Supplementary Materials Experiments 4a and 4b). That is, expected level of fairness was influenced by social perception. Third, when assessing participants' own monetary decisions in the DG, their self-reports on the stereotype dimensions, and their levels of intelligence, only self-reported communion emerged as a stable correlation between the money amount sent in the DG and self-reports, whereas agency, political orientation, and intelligence did not (Experiments 3a-3c). That is, the inferences participants

drew from DG behavior about personality traits and intelligence (and vice versa) did not reflect reality but rather participants' social construction of reality.

As outlined in the General Discussion section of Chapter 4 (pp. 101-109), the most challenging finding of this chapter for orthodox economic theory was that self-interested behavior in the DG (to be equated with economically rational behavior) was not only perceived as unfair but also as an indicator for low intelligence. If one conceptualizes intelligence as a proxy for rationality, this finding seems paradoxical: the rational course of action is perceived as the irrational course of action. One may, however, argue that this ostensible paradox is partly due to a common misconception of the term intelligence, which is in fact widespread among both laypersons and psychologists. More specifically, people referring to the concept of intelligence appear to generally assume that this concept entails rationality (cf. Stanovich, 2009; 2016). This is not entirely wrong because both intelligence and skills in rational thinking relate to achieving objectives in every-day life (Stanovich, 2009). In fact, achieving objectives is a key indicator for adaptive decision-making which in turn is the pinnacle of rationality. Moreover, one may also defend the psychologists in their conception by arguing that measures of intelligence are highly correlated with performance on various rational thinking tasks (Deary, 2000; Hunt, 2011).

However, equating intelligence as measured by traditional IQ tests (Sternberg, 2000) with rationality is still misplaced because, as Stanovich (2009) contends, "IQ tests do not measure adaptive decision making" (p. 11). Thus, intelligence (as traditionally defined) and rationality are distinct from each other – both conceptually and empirically (Stanovich, 2012). This distinction in fact may be of major importance because it allows for explaining how people can simultaneously behave rationally and unintelligently. And if people can be rational and unintelligent at the same time then their actions also can be perceived as both rational and

unintelligent, which is what I found in Chapter 4 (Experiments 1a and 1b). Seen from this angle, the supposed paradox is not at all a paradox. Furthermore, operationally differentiating between rationality and intelligence points out an important endeavor for future research. More precisely, future research extending the findings of Chapter 4 may not only investigate the bi-directional relations observers infer between dictators' behavior in the DG and dictators' level of intelligence but also between dictators' behavior and dictators' level of rationality. In addition, future research in this regard may even go further by differentiating between two types of rationality, namely epistemic[41] and instrumental rationality (Over, 2004; Mele & Rawling, 2004). Put simply, epistemic rationality refers to the question of what is true, and instrumental rationality refers to the question of what to do (cf. Manktelow, 2004).

At first glance, the former question seems of no particular relevance to DG behavior, whereas the latter seems all the more appropriate. This is due to the overriding importance of instrumental rationality in orthodox economic theory. For economists, instrumental rationality is mutually interchangeable with maximization of expected utility (von Neumann & Morgenstern, 1944). That is, in other words, perfectly instrumentally rational people always decide in favour of the option to which they assign the largest expected utility. The largest expected utility means nothing else than the highest expected value, thus, perfect instrumental rationality is nothing other than what I called economic rationality in Chapter 4. Therefore, the constructs are commensurable and so are their implications for DG behavior: a perfectly instrumentally or economically rational dictator should opt for allocating no money to other players. Thus, instrumental rationality can readily be applied to DG behavior.

[41] Epistemic rationality is also referred to as evidential or theoretical rationality (see, e.g. Foley, 1987; Audi, 2001).

In contrast, the application of epistemic rationality to the DG is trickier. Nevertheless, I argue that it is worth taking a closer look at. Epistemic rationality means the competence of having accurate beliefs, that is, beliefs optimally calibrated to the world, which in turn requires the ability to calibrate theories to evidence and of probabilistic reasoning. Applied to the DG this means that people high in epistemic rationality should be able to anticipate that the majority of dictators will opt for violating the predictions of economic or instrumental rationality, that is, send positive amounts of money, tending to fall in the category of fair shares (cf. Engel, 2011). Only if people expect this behavioral pattern, their beliefs are optimally calibrated to reality.

Thus, I argue that the implications of high epistemic versus high instrumental rationality actually contradict each other regarding what the "rational" course of action in the DG is. The question of what to do in the DG (i.e. instrumental/economic rationality) should be answered by stating that dictators should send nothing to receivers, whereas the question of what is true in the DG (i.e. epistemic rationality) should be answered by stating that dictators overall send about 25 percent of the endowment to receivers (Engel, 2011; Camerer, 2003). Building up on this, I pioneer the idea that disentangling the implications of instrumental versus epistemic rationality for the DG raises intriguing questions for future research. First, future research may investigate the relations observers infer between dictators' money amount sent and the two types of rationality. Do observers infer instrumental or epistemic rationality from fair versus unfair behavior in the DG? Vice versa, do observers expect fair (vs. unfair) behavior from dictators high in epistemic or high in instrumental rationality? My hypothesis would be that observers should infer high epistemic rationality from rather fair behavior in the DG and high instrumental rationality from rather unfair behavior in the DG.

In line with this, I would also hypothesize that observers should expect fair behavior from dictators high in epistemic rationality and unfair behavior from dictators high in instrumental rationality. Moreover, in future studies, one also may orthogonally manipulate dictators' levels of epistemic and instrumental rationality. For example, the description of such a dictator could read: "Please think of a dictator scoring high in epistemic rationality and also scoring high in instrumental rationality, that is, a dictator having beliefs optimally calibrated to the world and performing optimally in terms of goal fulfillment." It would be an intriguing empirical question how observers weigh and resolve the tension between these two types of rationality and align their predictions accordingly. Regardless of the pattern of results, however, I believe that exploring these relations would provide important insights in people's understanding of "rational" behavior. Moreover, from this perspective, it would be premature to conclude that the findings of Chapter 4 imply that people perceive unfair behavior in the DG as irrational. They may, however, perceive unfair behavior as epistemically irrational – a hypothesis that needs to be tested in a prospective study.

Second, future research also may examine factual correlations between behavior in the DG and people's level of rationality, that is – as Stanovich, West, and Toplak (2016) conceptualized it – their rationality quotient (RQ). This could be operationalized through the same methodological approach as implemented in Experiments 3a-3c in Chapter 4: participants would be asked to play the DG themselves and afterwards perform a rationally test. More specifically, participants could complete the so-called Comprehensive Assessment of Rational thinking (CART) which is the first prototype of a rational thinking test, introduced by Stanovich and colleagues (2016; see also Stanovich, 2016). The CART incorporates different assessment domains. Some are conceptualized to primarily tap epistemic rationality and others are

conceptualized to primarily tap instrumental rationality (for the overall framework of the CART, see Stanovich, 2016, p. 28). Thus, the CART items allow for testing if diverging behavioral patterns in the DG emerge as a function of whether a person scores either high on items assessing epistemic rationality or on items assessing instrumental rationality. By implementing the CART, future research may reveal correlations between participants' money amount sent in the DG and their (distinct) rationality ratings – a relation I did not find for intelligence ratings (cf. Chapter 4, Studies 3a, 3b, and 3c).

Beyond the methodological value of the CART as a measurement in future studies addressing the relations between rationality and DG behavior, I also want to draw attention to the fact that the CART is an impressive example of the mutual impregnation of economics and psychology. Psychologists have, on the one hand, an over 100 years old tradition of intelligence research (cf. Stanovich, 2009), with investigating variation in intelligence being one of the most popular topics in psychology for many years (e.g., Hunt, 2011)[42]. On the other hand, however, psychologists, for a long time, completely refrained from developing tools to measure interindividual variation in rational thinking[43]. This neglect held until the 1970s when work in behavioral decision research (p. 6) slowly started to develop laboratory tasks to measure rational thinking, which ultimately culminated in the work preparing the CART (e.g., Stanovich & West, 1998).

Economists, however, started much earlier to grow an interest in operationalizing rationality, which does not come as a surprise since the concepts of utility maximization and rationality are inextricably linked (von Neumann and Morgenstern, 1944; Savage, 1954). While I

[42] Stanovich (2009) refers to this as „intelligence imperialism" (p. 47).
[43] One exception to this neglect is the work of Bruine de Bruin, Parker, and Fischhoff (2007) on individual differences in adult decision-making competence.

do not want to contest the seminal contribution of economists in this vein, I argue that in order to advance the field investigating rationality, it was an inevitable step forward to uncouple rationality from narrow utility maximization. Rationality is a multifarious concept and attempts to describe and measure it should thus meet the requirements of rationality's complexity. Expected value maximization is unquestionably a useful proxy for rationality in certain respects, however, other proxies or measurements for rationality may be equally important and, in some respects, even superior. The concepts of rationality and expected value maximization should not be fused because the latter is only a subset of the former.

In the last decades, however, behavioral economists have insufficiently detached their approaches from orthodox economic theory in the sense that they continued to place an overemphasis on measuring rationality in terms of monetary outcomes – especially in terms of optimizing monetary outcomes versus not. It may foster the scientific progress of BE if researchers start to treat rationality as a continuous instead of a dichotomous variable. In fact, I propose that considering continuous degrees of rationality may be just as important as considering the different aspects of rationality outlined above. Specifically, degrees of rationality may allow for categorizing people's behavior and decisions more accurately by categorizing, for instance, some behavior as 10 percent rational and other behavior as 70 percent rational (instead of only 0 vs. 100 % rational). Thus, degrees of rationality may allow for a precise location of a given target's decision on the continuum of rationality.

In sum, I suggest that in order to develop a truly alternative model to the neoclassical one, both the concept and the measurements of rationality should be broadened in a (social) cognitive direction, acknowledging its complexity instead of shying away from it. The CART, for instance, may be regarded as an important step in this direction: it is an example of how psychologists

profited from economists by acknowledging the importance of rationality (and by stopping to confound rationality with intelligence) and, vice versa, of how economists in the future may profit from psychologists by adopting a broadly and well-operationalized measurement tool for rational action and thinking.

Chapter 6 – Conclusion

Progress towards the long-advocated goal of reintegrating economics with psychology is now well advanced (Angner, 2019). BE, the product of this reintegration, has come of age and reached the status of an established discipline. In fact, the past three decades have witnessed an explosion of experimental research employing economic games such as the UG and the DG. But although the employment of economic games is now a mainstream research activity, it remains narrow in scope – one might even say immature. By this, I specifically mean that behavioral economists still tend to confine their research to investigating violations of orthodox economic assumptions and put an exaggerated emphasis on rational equilibrium behavior and monetary payoffs as the sole critical (dependent) variable to learn from. However, a truly behavioral approach should consider a far broader range of variables and should be amenable to also learn from measurements and constructs such as reaction times, limited attention, social emotions (cf. Chapter 3), or social perception (cf. Chapter 4).

So, if BE is to deserve its adverb “behaviorally”, it is obliged to shift its focus from a primarily descriptive research program to a more inductive, process-focused program. In Chapter 2, I argued that this may be accomplished by an integration of BE and social cognition paradigms, and especially by regarding economic games as methodological vehicles rather than as the pivotal objects of empirical interest. To portray the novel insights that can be gained

through employing economic games as tools to unveil social cognitive aspects of behavior and decision-making, I provided two examples: Chapter 3 shed light on the influence of social distance and outcome value on decision-making for others and employed the UG as a vehicle to realize different levels of social distance and outcome value. Chapter 4 unveiled the impact of social perception and inference processes on evaluating and predicting decision-making in the DG and employed the DG as a tool to realize different levels of observable, behavioral fairness.

Moreover, the findings of Chapter 3 and 4 provide the following theoretical insights: First, level of displayed fairness is influenced by social distance (Chapter 3). Second, level of displayed fairness influences social perception (Chapter 4). Third, level of expected fairness is influenced by social perception (Chapter 4). These insights may contribute to a profounder understanding of the role of fairness in social interactions and decision-making, may allow for novel predictions building upon them, may offer the potential of further theoretical (e.g., inequity aversion theory) and conceptual (e.g., rationality) integration, and may even pave the way for future research that may develop interventions in this domain.

As Aristotle already pointed out in his famous Politics, people are, by nature, social animals, not economically rational animals. Would it then really come as a surprise if behavioral economists some day came to realize that the entire empirical laws explaining interactive behavior in economic games are social-cognitive in nature? I – in line with others (e.g., Crusius, van Horen, & Mussweiler, 2012) – suggest that it would not. Be that as it may, the intellectual journey of BE has clearly not come to an end yet; and there are surely a lot more unexploited gains to BE's empirical and theoretical matureness that can be reached by further methodological integration of BE and social cognition research.

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